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UNIVERSITY OF NORTHERN COLORADO

Greeley, Colorado

The Graduate School

A CASE STUDY EVALUATION OF THE IMPLEMENTA-
TION OF TWICE-EXCEPTIONAL PROFESSIONAL
DEVELOPMENT

A Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

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College of Education and Behavioral Sciences
School of Special Education
Special Education

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Entitled: *A Case Study Evaluation of the Implementation of Twice-Exceptional Professional Development*

has been approved as meeting the requirement for the Degree of Doctor of Philosophy in College of Education and Behavioral Sciences in School of Special Education, Program of Special Education

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ABSTRACT

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According to the *2014–2015 State of the States in Gifted Education*, Colorado is the only state in the United States where a series of onsite, customized twice-exceptional professional development opportunities have been implemented. Yet, the Colorado Department of Education and its partner school districts have not systematically evaluated the impact of that two-year initiative. The purpose of this study was to understand the implementation of twice-exceptional professional development during 2014–2016 in a school district in Colorado. A case study design was used to better understand (a) educators’ perspectives about their training experiences and the educational services developed and/or implemented as a result of the training, (b) educators’ perceptions of the training’s impact on twice-exceptional students’ learning, and (c) organizational support and changes that facilitated the implementation of twice-exceptional educational services. Seven training participants and four administrators who were involved in the training were purposefully selected. Documentation and archival records were collected, and interviews were conducted.

Eight major themes emerged: (a) increased knowledge and skills, (b) evolved attitudes, (c) recurring challenges, (d) utilizing a team approach, (e) improved performance, (f) difficulty in measuring impact, (g) improved school culture, and (h)

planning for the future. In addition to a discussion of themes, implications for improving educator and student outcomes and for creating organizational support and changes are presented.

This study contributes to educational research and evaluation in order to assist a local education agency in designing, implementing, and evaluating professional development that provides educators of twice-exceptional students with the knowledge and skills necessary to enable students to succeed in their education.

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O beautiful for spacious skies, for amber waves of grain;
For purple mountain majesties above the fruited plain!
America! America! God shed His grace on thee,
And crown thy good with brotherhood from sea to shining sea.

I am so blessed to have come to Colorado. The journey, people, and mountains—these I treasure in my heart.

TABLE OF CONTENTS

CHAPTER		
I.	INTRODUCTION	1
	Problem Statement	
	Purpose of the Study	
	Significance of the Study	
	Definition of Terms	
II.	REVIEW OF THE LITERATURE	9
	Giftedness	
	Disability	
	Twice Exceptionality	
	Personnel Training in Supporting Twice-exceptional Students	
	Professional Development	
	Summary	
III.	METHODOLOGY	79
	Overview of Methodology	
	Purpose and Research Questions	
	Theoretical Framework	
	Researcher's Stance	
	Research Design	
IV.	ANALYSES AND FINDINGS	105
	Research Participants	
	The 2E Project of 2014–2016	
	Themes	
	Summary	
V.	DISCUSSION	163
	Discussion/Addressing the Research Questions	
	Limitations of the Study and Suggestions for Future Research	
	Implications for Practice	
	Reflection	
	Summary	

REFERENCES	186
APPENDIX	
A. Sample Email Script for the 2E Project Completers	213
B. Sample Email Script for the 2E Project Partial Completers	222
C. Sample Email Script for Administrators	226
D. Institutional Review Board Approval	233
E. Chain of Evidence	236
F. Logic Model Matrix	242
G. Interval Protocol for the 2E Project Completers	244
H. Interview Protocol for the 2E Project Partial Completers	249
I. Interview Protocol for Administrators at the Hope District	254
J. Interview Protocol for Administrators at the Colorado Department of Education	258

LIST OF TABLES

Table

1.	Students Ages 6-21 Served Under IDEA as a Percentage of Population.....	25
2.	Definitions of “Adversely Affect” and “Educational Performance” in State Law/Regulations	27
3.	Two Approaches of Response to Intervention	30
4.	Sources of Effective Practices Inventories in Special Education	35
5.	Examples of Twice Exceptionality Included in State Laws	41
6.	Characteristics of Gifted Learners with Specific Learning Disabilities (SLD), Attention Deficit Hyperactivity Disorder (ADHD), and Autism Spectrum Disorders	54
7.	Possible Professional Learning Topics Regarding Teaching Strategies	68
8.	Features of High-quality Professional Development	73
9.	Levels of Evaluation of Professional Development	75
10.	Participants’ Background Information	87
11.	Schools’ Demographics	90
12.	Research Questions and Initial Categories	94
13.	Example: Developing a Theme by Connecting the Research Question, Category and Quotes	97
14.	Phase 3 of Data Analysis	98
15.	The General Analysis Procedure	101

16.	Strategies to Build Trustworthiness	103
17.	Participants' Training Background	107
18.	Rating and Year 2 Involvement	109
19.	CDE's Deliverables and an AU's Commitment	111
20.	Levels 1 and 2 Training Provided in the 2014-2015 School Year	112
21.	Research Questions, Themes, and Subthemes	123
22.	A List of Mini-modules and When They were Used for Professional Development	134
23.	A Logic Model of the 2014-2016 2E Project in the Hope District	162
24.	Suggestions from 2E Project Training Participants for Providing Administrative Support	173
25.	Specific Recommendations for Educators, Professional Learning Providers, and Administrators	182

LIST OF FIGURES

Figure

1. Diagram of Twice-exceptionality	50
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CHAPTER I

INTRODUCTION

Students with disabilities have the right to a free appropriate public education, and this is no exception for gifted students with disabilities (i.e., twice-exceptional students or 2E students). The Civil Rights Data Collection of 2011–2012 shows that students with disabilities do not have adequate access to gifted and talented education programs—“While 7% of students without disabilities are participating in gifted and talented education (GATE) programs, only 1% of students with disabilities served under IDEA do so” (U.S. Department of Education Office for Civil Rights, 2014, p. 4). This disproportionality demonstrates the need to ensure twice-exceptional students have equitable access to gifted education (Coleman & Ford, 2016).

Educating twice-exceptional learners requires school personnel to be trained in recognizing the characteristics of these unique learners. The lack of understanding of the phenomenon of twice exceptionality is a huge barrier to nurturing students’ talents (Morrison & Rizza, 2007; Nielsen, 2002). Failing to recognize the potential of students with disabilities may prevent them from getting advanced learning opportunities. Professionals estimate that 5–6% of children with disabilities might also be gifted and talented (National Education Association, 2006; Whitmore, 1981). Based on an estimate, there were over three million students identified as twice exceptional in the 2012–2013 school year (Kena et al., 2015); compared to 50 million students in public schools, three

million is a fairly small number. Given the small 2E population, society cannot afford the consequences of losing those talents. Gifted students are “a national resource, an investment in the future of the United States” (Johnsen, 2013b, p. 98); this includes twice-exceptional students. Not providing opportunities for this special population to achieve represents a “quiet crisis” (Davidson, 2002; Ross, 1993, p. 5).

To address this “quiet crisis,” effective preservice and inservice training for teachers and educational professionals on twice-exceptionality is greatly needed. Based on data from the past four years, Nevada is the only state that required all preservice teachers to take a separate course in gifted education. Sixteen other states reported that preservice teachers received a few hours of instruction in a course on diverse/special populations of students. Although the numbers of states providing preservice training decreased from 2012–2013 to 2014–2015, the majority of states either have no state policy for providing gifted education training for general education teachers or make it “voluntary” (National Association for Gifted Children [NAGC], & Council of State Directors of Programs for the Gifted [CSDPG], 2013, 2015).

Historically, personnel training in special education has also been reported as scarce. The introductory-level special education coursework has been found to inadequately prepare general preservice teachers to instruct students with disabilities (Powers, 1992). Not only have preservice teachers felt “ill equipped” (Goodlad & Field, 1993, p. 235), but also teacher educators have agreed that preservice teachers tend to receive limited coursework and field experience in working in inclusive classrooms (Kearney & Durand, 1992; Reed & Monda-Amaya, 1995). Collaboration, which is considered an indispensable practice in the age of inclusion, has been missing in many

teacher education programs for decades (Allday, Neilsen-Gatti, & Hudson, 2013; Reed & Monda-Amaya, 1995). Regarding professional development, available statistics in a national survey indicated that 38–49% of general education teachers, over a three-year period, alarmingly spent only 1–8 hours total learning adaptive instruction, behavioral management, and collaboration with special educators (Study of Personnel Needs in Special Education, 2001).

In summary, the field of education needs a long-term commitment to better prepare and support teachers to serve students with exceptionalities. Because training in preservice programs is limited, ongoing professional development is needed for the benefits of both teachers and the students they serve.

Problem Statement

The needs of twice-exceptional students in the United States are not being met (Reis, Baum, & Burke, 2014). Through quality professional development, educators can improve the learning of this unique population (Baldwin, Baum, Pereles, & Hughes, 2015; NAGC, 2013a). However, in general, quality professional development is not occurring, and when it takes place, educators do not know if it is effective or not (Mizell, 2010). For the purpose of accountability and sustainability, it is critical that school districts that commit the time and resources to develop and deliver professional development evaluate the quality and effectiveness of these initiatives.

Colorado serves as the only example in the United States where a series of onsite, customized twice-exceptional professional development opportunities have been implemented (NAGC & CSDPG, 2015). The 2E professional development (i.e., 2E Project named by the Colorado Department of Education [CDE]) has shown some

features of high-quality professional development, including longer duration and collective participation (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Garet, Birman, Porter, Desimone, & Herman, 1999; Garet, Porter, Desimone, Birman, & Yoon, 2001; Jaquith, Mindich, Wei, & Darling-Hammond, 2010). However, the CDE and school districts have not yet systematically evaluated the 2E Project since it started in 2014. Currently, the CDE is still providing training and consultation for interested school districts. As for school districts that collaborated with the CDE during 2014–2016, some are growing their capacity in serving twice-exceptional students, while others have lost the momentum to carry on. The participating district in this study had a new cohort in 2016-2018, and the new cohort was collaborating with the 2014-2016 cohort, working on district-developed twice-exceptional services. In light of this study’s preliminary findings generated from six school districts, an evaluation study is necessary not only to determine the quality and effectiveness of these professional development initiatives, but also to ensure sustainability of those initiatives.

Purpose of the Study

The purpose of the study was to evaluate the 2014–2016 Twice-Exceptional Project Training in a school district in Colorado. In this study, the implementation of the 2E Project was examined in three dimensions: (a) Educators: The educator outcomes included their reactions to and feedback on the training and the educational services developed and/or implemented as a result of the training; (b) Students: Observed changes of twice-exceptional students included progression through the education system and documented changes in social and behavioral competencies and/or functional outcomes; and (c) School/District: Outcomes at the school/district level refers to administrative

supports provided after the training to develop and/or implement educational services for 2E students.

The 2E Project has not been formally evaluated, and this case study focused on educators' experiences in one participating school district. With the purpose to improve professional development activities for educators, the following questions guided this study:

- Q1 What were participants' experiences serving 2E students before, during, and after the 2E Project Training?
- Q2 How have participants developed and implemented educational services for 2E students?
- Q3 What are participants' perceptions of the 2E Project's impact on 2E students' learning?
- Q4 What were school- or district-level changes that resulted from the 2E Project?

Significance of the Study

This study helped a local education agency improve the implementation and evaluation of professional development activities. Under the *Every Student Succeeds Act*, an evidence-based activity shall (a) demonstrate “a statistically significant effect on improving student outcomes or other relevant outcomes” based on strong, moderate, or promising evidence that are supported by experimental, quasi-experimental, or correlational studies or (b) demonstrate “a rationale based on high-quality research findings or positive evaluation that such activity, strategy, or intervention is likely to improve student outcomes or other relevant outcomes” and include “ongoing efforts to examine the effects of such activity, strategy, or intervention” (P.L. 114–95 § 8002(21)). Because the researcher did not intend to manipulate factors of professional development

activities, such as delivery models and participants, the researcher was unable to produce strong, moderate, or promising evidence from the 2014–2016 2E Project Training. Therefore, the researcher took a second approach to conduct an evaluation study, examining the implementation of professional development activities, and to provide the partner school district with an evaluation framework for making ongoing improvement efforts. This study contributed to educational research and evaluation in order to assist a local education agency to design, implement, and evaluate professional development that provides educators of twice-exceptional students with knowledge and skills necessary to enable students to succeed in their education.

Definition of Terms

Educational services for twice-exceptional students. Educational services for twice-exceptional students includes the services, delivery models, and programs provided to gifted students with disabilities.

Educator outcomes. The educator outcomes include (a) their reactions to and feedback on the 2E Project and (b) the educational services developed and/or implemented as a result of the 2E Project.

Professional development. Professional development, known as professional learning, refers to activities that

(A) are an integral part of school and local educational agency strategies for providing educators (including teachers, principals, other school leaders, specialized instructional support personnel, paraprofessionals, and, as applicable, early childhood educators) with the knowledge and skills necessary to enable students to succeed in a well-rounded education and to meet the challenging State academic standards; and

(B) are sustained (not stand-alone, 1-day, or short term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused. (Every Student Succeeds Act, P.L. 114–95 §8002 (42)).

Student outcomes, education outcomes, or student education outcomes. In the field of special education research, student education outcomes are either directly affected by an intervention or indirectly affected through educators' changes in knowledge and skills that support student learning (Institute of Education Sciences [IES], 2016). This study examined changes of students as indirect outcomes of twice-exceptional professional development through educators' perceptions.

Five types of student education outcomes are defined by the IES (2016, pp. 132–133): (a) developmental outcomes, (b) school readiness, (c) student academic outcomes, (d) social and behavioral competencies, and (e) functional outcomes. Different school districts may have varied definitions of student outcomes, but IES' definition is used to categorize the districts' definitions. This study used the following three types of student outcomes to categorize districts' approaches to define and measure student growth:

Student academic outcomes: Outcomes that reflect students' successful progression through the education system.

Social and behavioral competencies: Social skills, attitudes, and behaviors that may be important to students' academic and post-academic success.

Functional outcomes: Skills or activities that are not considered academic or related to a child's academic achievement; "functional" is often used in the context of routine activities of everyday living and can include outcomes that improve educational results and transitions to employment, independent living, and postsecondary education for students with disabilities. (IES, 2016, p. 133)

Twice-exceptional professional development. The twice-exceptional professional development in this study means the Twice-Exceptional Project Training (2E Project) initiated by the Colorado Department of Education. The CDE collaborates with administrative units (i.e., school districts, board of cooperative services, or the State Charter School Institute) to provide onsite, customized training with a purpose to increase teachers' and education professionals' abilities to facilitate and increase learning

outcomes of twice-exceptional students. It takes two years to complete a 2E Project at one administrative unit.

Twice-exceptional students (twice exceptionality, 2E). This study adopted the definition of “Twice Exceptional” described in *Colorado Rules for the Administration of the Exceptional Children’s Educational Act* (1 CCR 301-8 §12.01(30)) in which twice-exceptional students are those who are identified as gifted according to state criteria and identified with a disability according to federal and state criteria.

In Colorado, “gifted children” are those

Between the ages of four and twenty-one whose aptitude or competence in abilities, talents, and potential for accomplishment in one or more domains are so exceptional or developmentally advanced that they require special provisions to meet their educational programming needs.... Gifted students include gifted students with disabilities (i.e. twice exceptional) and students with exceptional abilities or potential from all socio-economic, ethnic, and cultural populations. Gifted students are capable of high performance, exceptional production, or exceptional learning behavior by virtue of any or a combination of these areas of giftedness:

- (a) General or Specific Intellectual Ability
 - (b) Specific Academic Aptitude
 - (c) Creative or Productive Thinking
 - (d) Leadership Abilities
 - (e) Visual Arts, Performing Arts, Musical, Dance, or Psychomotor Abilities
- (Colorado Department of Education, 1 CCR 301-8 §12.01(16))

CHAPTER II

REVIEW OF THE LITERATURE

The first section of this chapter describes the conceptions of giftedness and policies and practices at the national and state levels. Section two focuses on the federal definitions of disabilities and related identification issues. Section three presents the emergence of twice exceptionality and current issues of serving that population, including mandates and awareness. The fourth section discusses personnel training in supporting twice-exceptional students, followed by a section on the features of effective professional development and current studies on its effectiveness.

Giftedness

Conceptions of Giftedness

The understanding of giftedness influences identification and programming practices, and it is indispensable to discuss how people perceive giftedness historically. Giftedness can be conceptualized by four waves: domain-general models, domain-specific models, systems models, and developmental models (Kaufman & Sternberg, 2008). Researchers with a domain-general perspective view giftedness as a general, innate mental capacity that enables an individual to function at an exceptionally high level. Researchers during that era such as Charles Spearman, Alfred Binet, and Lewis Terman used a variety of cognitive assessments to identify gifted individuals. The domain-general models which dominated research in giftedness in the earliest ages

posited that giftedness was a score in the top 1% an intelligence test; this belief still plays a huge role in today's identification procedures (Kaufman & Sternberg, 2008; Sternberg, Jarvin, & Grigorenko, 2011).

Approximately two decades later, researchers with a domain-specific perspective interpreted human abilities by hierarchical models. Louis Thurstone asserted that the intelligence concept contains seven mental abilities that are independent of each other. John Horn and Raymond Cattell proposed that beneath general intelligence, there are fluid intelligence and crystallized intelligence. John Carroll created the Three-Stratum Theory, explaining mental abilities from the highly specialized ones to general intelligence. Howard Gardner's Multiple Intelligences and Julian Stanley's Study of Mathematically Precocious Youth are two other examples reflecting a domain-specific perspective (as cited in Kaufman & Sternberg, 2008). These models challenged the notion of high general intelligence being synonymous with giftedness (Kaufman & Sternberg, 2008). Higher-level education provided in core academic subjects or other areas (e.g., music) reflects the domain-specific models (Matthews & Dai, 2014).

Psychological processes underlie systems models of giftedness (Kaufman & Sternberg, 2008). These models came after 1970. Joseph Renzulli defined gifted behaviors as those composed of above-average ability, high levels of task commitment, and high levels of creativity. Robert Sternberg used WICS (*wisdom, intelligence, creativity, synthesized*) as a model of giftedness. He argued that giftedness is

A function of *creativity* in generating ideas, *analytical intelligence* in evaluating the quality of these ideas, *practical intelligence* in implementing the ideas and convincing others to value and follow the ideas, and *wisdom* to ensure that the decisions and their implementation are for the common good of all stakeholders. (Sternberg et al., 2011, p. 34)

Different from domain-specific modelers that view creativity as an output of giftedness, systems modelers view creativity as an input that interacts with intelligence (Kaufman & Sternberg, 2008). Educators with a systems perspective would advocate for using alternative or multiple assessments in addition to general intelligence tests to identify gifted students (Johnsen, 2013b; Kaufman & Sternberg, 2008).

Most recently, developmental models have posited that both external and internal factors produce gifted behaviors (Kaufman & Sternberg, 2008). François Gagné distinguished *gifts* from *talents* in his talent-development process, the Differentiated Model of Gifted and Talented; the former is natural, and the latter is developed. David Feldman viewed *gifts* as “general, adaptive, broader, and domain-independent kinds of abilities” and *talents* as “abilities more specific to a given domain” (Feldman, 2003, p. 26). The manifestation of giftedness is a process of fulfilling one’s potential from a novice to a master (Feldman, 2003). Feldhusen asserted, “All students have talents, strength, gifts, aptitudes, or abilities that represent potentials to be developed” (Feldhusen, 2003, pp. 34–35). To identify students, educators with a developmental view may support using intelligence tests at a young age and achievement tests later as they develop talents (Kaufman & Sternberg, 2008).

Giftedness at the National Level

Although the introduction of *The Gifted and Talented Children’s Educational Assistance Act* in 1969 urged administrators to develop programs for gifted and talented students, gifted education in the United States has consistently received little attention and financial support at the national level. Another purpose of the 1969 bill was to include the phrase “gifted and talented” in the *Elementary and Secondary Education Act*

and *Educational Professional Development Act* (Harrington, Harrington, & Karns, 1991).

Yet, there was no consensus of a definition of gifted and talented in education that could critically influence the provision of suitable services for these students.

A federal definition of gifted and talented presented in the Marland Report (Marland, 1971) became the definition that many states in the United States began to model their own definitions of giftedness after. It reads:

Gifted and talented children. . . . require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society.

Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:

1. general intellectual ability
2. specific academic aptitude
3. creative or productive thinking
4. leadership ability
5. visual and performing arts
6. psychomotor ability. (Marland, 1971, p. ix)

This very first federal definition in the United States recognized that gifted and talented students (a) need different programs or services from regular school programs and (b) excel in one or multiple academic/ability areas. The majority of experts accepted the inclusion of those six areas of giftedness delineated in Marland's report (McClellan, 1985). In *National Excellence*, Ross (1993) reported that 73% of school districts in the nation adopted the Marland definition, which suggested that districts "consider a broad range of talents" (p.23). Feldhusen (2003) believed that the *National Excellence* report (Ross, 1993) laid the foundation for talent development.

Conceptions of giftedness are revealed also in the *Jacob K. Javits Gifted and Talented Education Act of 1988* (P.L. 100-297). The Javits Act gives its priorities to "identifying students missed by traditional assessment methods (including children who

are economically disadvantaged, limited-English-proficient, or have disabilities) and to education programs that include gifted and talented students from such groups” (U.S.

Department of Education, 1993). Frasier and Passow (1994) asserted:

The Javits Act reaffirmed that in every population there are individuals with potential for superior or outstanding achievement who are in environments where this aptitude may not be recognized or nurtured. These individuals are most likely to come from racial/ethnic minority or economically disadvantaged groups. (p. 3)

After reviewing the Javits programs, Frasier and Passow (1994) concluded that culture and context must be considered in talent search. They, then, stated that a new paradigm of giftedness reflects “multifaceted, multicultural, multidimensional perspectives” and is defined by “traits, aptitudes, and behaviors to be nurtured rather than by static test performance” (p. 78). Although a definition of giftedness is not provided in the latest federal K–12 education law, *Every Student Succeeds Act* (ESSA), the continuation of the Javits Act implies that the constructs of giftedness proposed by Frasier and Passow (1994) will keep dominating gifted education in the near future.

Giftedness at the State Level

Gifted education policies differ from state to state. While there is no mandate for gifted education at the federal level, “states assume responsibility for meeting the needs of gifted students” (Lord & Swanson, 2016, p. 5). *The State of the States of Gifted Education* (NAGC & CSDPG, 2013, 2015) and *Status of Elementary/Middle School/High School Gifted Programs* (Callahan, Moon, & Oh, 2013a, 2013b, 2013c) are national survey reports; the findings in 2013 and 2015 are used to present the status quo of gifted education at the state level.

Definitions. Over 30 states defined giftedness in state statutes, rules, and regulations (NAGC & CSDPG, 2013, 2015). Minnesota defined *gifted and talented*

children and youth in its statewide reporting system (Minnesota Department of Education, 2011). More than 20 states addressed these areas of giftedness: (a) intellectually gifted, (b) academically gifted, (c) specific academic areas, (d) creatively gifted, and (e) performing/visual arts (NAGC & CSDPG, 2013, 2015). Some states also recognized that a broad range of gifts and talents could be found in subgroups such as low socioeconomic status, underachievement, cultural/ethnic diversity, English language learners, and individuals with disabilities (NAGC & CSDPG, 2013, 2015).

Identification. Identification is related to definitions of giftedness (Passow & Rudnitski, 1993; NAGC & CSDPG, 2015). Assessments should be used to reflect giftedness defined by the state or district, and the gifted identification process should align to the purpose of gifted programs (Moon, 2013). Based on a review of literature, the National Association for Gifted Children advised that the gifted identification process should include the following critical elements: (a) an operational definition, (b) multiple criteria, (c) sensitive, inclusive assessment tools for underrepresented groups, (d) placement options, (e) identification in the arts and other specific domains, (f) a connection to curriculum and service, (g) general process outlines for decision making, and (h) an appeals process (Lord & Swanson, 2016).

In addition to the critical elements mentioned above, NAGC has a position statement (NAGC, 2008) providing research-based practices to strengthen the use of assessments for identification purposes. First, the choice of assessment tools should align with the official definition of giftedness of a state, district, or school. Unfortunately, Johnsen (2013b) indicated that limited funding for gifted education “may influence the theory of giftedness embraced by educators as they create more exclusive definitions to

meet state standards (e.g., serve only students who are academically able)” (p. 94). The NAGC states, “[T]he choice of assessment tools must match the definition of giftedness” (NAGC, 2008, p. 2); however, due to exclusive definitions of giftedness, the selection of assessment tools may be restricted in those states where limited funding is available. Second, a balanced use of “multiple pieces of evidence” (p. 2) in different format types should be reinforced so that assessment results can better represent the picture of a student than depending on a single assessment. Regarding the administration of assessments, the greater familiarity of setting for students the better. In the position statement, the NAGC also emphasizes the professional demeanors of school system personnel who are involved in identification.

According to the national surveys of the state of gifted education (NAGC & CSDPG, 2013, 2015), over 30 states reported mandating gifted identification. Two thirds of them provided partial funding and 8 states provided no funding for that service. Approximately 20 states left school districts to determine their identification criteria and methods. Common identification indicators included (a) multiple criteria model, (b) achievement data, and (c) intelligence test scores. Compared to the data in 2013, states reported using more nominations and referrals than state-approved assessments as initial referral mechanisms in 2015. In general, the time from initial referring to assessment was not mandated in over 30 states. About 20 states had no policies but left the decision to school districts regarding the portability of the gifted status within a state or across states.

Programming. Programming means “[f]ormally structured, regularly scheduled, ongoing services provided to students with gifts and talents in school or community settings (e.g., museum, laboratory, or university)” (NAGC, n.d.a). The following are

findings from the 2013 national survey of gifted programming (Callahan, Moon, & Oh, 2014).

Across the United States, gifted programming is offered at varied levels: 92.3% in elementary school, 83.5% in middle school, and 73.6% in high school (Callahan et al., 2014). Across all school levels, student learning outcome goals were lacking in survey respondents' reports of program goals. At the elementary and middle school levels, districts relied on informal classroom assessments to measure student outcomes, such as teacher-developed checklists, interviews, or student surveys. High schools primarily used *Advanced Placement*[®] tests. The majority of elementary schools did not report using student learning outcomes to inform policies and practices, whereas most middle and high schools reported using data for instructional practices and professional development.

More than 30% of responding school districts adopted no particular framework for programming. At the elementary and middle school levels, popular models included Tomlinson's Differentiation Model, Renzulli's Enrichment Cluster Model, and Kaplan's Depth and Complexity, whereas *Advanced Placement*[®] was a common choice at the high school level. The main program delivery options were homogeneous and limited: part-time, pull-out classes; homogeneous grouping; and single model/framework. The *NAGC Pre-K-Grade 12 Gifted Education Programming Standards* were underused in guiding gifted programs across school levels. Among six standards, Curriculum Planning and Instruction (Standard 3) was used more frequently.

A variety of curricular materials were used at the elementary and middle school levels, including materials developed by teachers, education companies and universities, public resources, and academic competition materials. *Advanced Placement*[®] course

resources were the primary materials for gifted students in high school. Narrow content areas were provided in gifted programming: language arts in elementary and high schools; mathematics in middle schools. Special skills such as creative-thinking skills were provided in elementary schools and problem-solving skills were provided in middle and high schools.

Personnel training. According to the *State of the States of Gifted Education* (NAGC & CSDPG, 2013, 2015), Nevada reported requiring all preservice teachers to take separate coursework in gifted education. Fewer than eight states specified competencies for gifted education teachers; those specified relied on the Praxis exam or state's teacher competency standards. Fewer than four states required course work in gifted education for administrator and counselor credentials.

About half of responding states had no state policies but left the decisions to districts or continuing education units to determine requirements about gifted/talented inservice training for general education teachers (NAGC & CSDPG, 2013, 2015). Fewer than seven states reported having required professional development hours for gifted education teachers. Those decisions were up to school districts; required hours ranged from not-specified to 24 hours. Differentiated instruction was the most popular topic of professional development across all school levels (Callahan et al., 2014).

Program evaluation. Based on the national survey of gifted programs (Callahan et al., 2014), approximately 50% of school districts across all school levels did not report conducting program evaluations. Among those with evaluations, 50–63% of them had a limited scope of internal evaluations. Overall, districts reported having more planned

changes in the next 12–18 months in elementary and middle schools than in high schools. Common changes included adjustments to program services and service delivery options.

Overall, program evaluation is a common element in applications and report cards of gifted programming (NAGC & CSDPG, 2013, 2015). From 2013 to 2015, the rating of *in-need-of-attention* in gifted program evaluation dropped slightly from 49% to 44% (NAGC & CSDPG, 2013, 2015). Pennsylvania, for example, considered program evaluation as a component of model districts for others to learn from (NAGC & CSDPG, 2013). Maine indicated that they needed (a) more support from administrators, (b) research to demonstrate the effectiveness of gifted programs, and (c) program evaluation tools to make gifted education services optimal in the state (NAGC & CSDPG, 2015).

Giftedness in Colorado

Colorado is among 24 states that mandate gifted education with partial funding (Davidson Institute for Talented Development, n.d.). The state policy of gifted education is included in the *Exceptional Children's Education Act* (ECEA). The Colorado Department of Education developed Gifted Education Guidelines (2012a) for educators and administrators to meet the requirements under the ECEA.

Definitions. In Colorado, gifted students (ages 4–21) are those who demonstrate exceptional or developmentally advanced (a) general or specific intellectual ability, (b) specific academic aptitude, (c) creative or productive thinking, (d) leadership abilities, and/or (e) visual arts, performing arts, musical, dance, or psychomotor abilities. The State also recognizes that gifted students include those with disabilities and/or from all socio-economic, ethnic, and cultural backgrounds (1 CCR 301-8 §12.01(16)). Administrative units must align their definition of giftedness to the state's definition (CDE, 2012a).

Identification. The identification procedures in Colorado are expected to meet the following requirements:

- (i) A method(s) to ensure equal and equitable access for all students;
- (ii) Referral procedures that seek referrals from a variety of sources, and screening procedures used for conducting identification assessment;
- (iii) A time line of no more than 30 school days after a referral to determine whether a student will continue with formal identification assessment, or will receive talent pool designation;
- (iv) Implementation of assessments that align with the purpose of identifying exceptionality in the categories of giftedness, and in traditionally underrepresented populations;
- (v) Collection of data for a body of evidence;
- (vi) A review team procedure; and that includes at least one person trained or endorsed in gifted identification and programming;
- (vii) A review team procedure for determining identification or a talent pool designation from a body of evidence and for developing individualized ALPs for identified students;
- (viii) A determination letter for parents and school files describing the decision of the review team, and area(s) of giftedness if the student is found to have exceptional abilities; and
- (ix) A communication procedure by which parents are made aware of the identification assessment process for their student, understand the results of the determination, and engage in the development and review of the student's ALP. (1 CCR 301-8 §12.02(2)(c))

The criteria for determining giftedness means “95 percentile or above on a standardized nationally normed test or observation tool, or a rating on a performance assessment that indicates exceptionality/distinguished compared to age mates” (1 CCR 301-8 §12.02(2)(d)(i)). Although the state set up a 95-percentile threshold, a Body-of -Evidence is emphasized in determining exceptional abilities. A body of evidence consists of quantitative and qualitative measures that can be used to meet the criteria for gifted identification and to build a learner profile of strengths and interests (CDE, 2016a). Accordingly, an administrative unit may utilize a variety of assessment tools to develop a body of evidence. These may include cognitive tests, creativity tests, achievement tests, behavior observation scales, performance evaluation, parent input, or additional data.

The identification portability is statewide; it means “a student’s identification in one or more categories of giftedness transfers to any district in the state” (CDE, 2016a, p. 4). Once a student is identified as gifted and talented in one district, he or she will keep the status as part of his or her permanent record and Advanced Learning Plan (ALP) after transferring to another district. There is one caveat: “When local norms are used for district identification results, portability of identification is not confirmed until re-evaluation provides evidence of exceptionality according to state criteria” (CDE, 2016a, p. 12). The *Exceptional Children’s Educational Act* requires the retainment of one’s gifted identification, and this requirement forces districts to align their identification procedures to the ones defined by the CDE (CDE, 2016a).

The Response to Intervention (RtI) approach may be used in identifying traditionally underrepresented student groups and visual/music/performing arts student groups or talent pools. The process

May start as a result of wide-net (gifted) screening, early recognition (pre-K and K), and/or specific referrals regarding observed or potential student strengths. . . . As data on a student is collected over time, through consultation and problem-solving, team members discuss their findings in order to adjust current programming and/or to complete a formal referral. . . . When data analysis and a body of evidence indicate advanced performance, consideration and planning for advanced-level gifted services should occur. (CDE, 2012a, p. 8)

In addition to the RtI approach, the CDE also suggests other models for gifted identification: Using Science, Talents, and Abilities to Recognize Students (U-STARS), Schoolwide Enrichment Model (SEM), Frasier Talent Assessment Profile (F-TAP), and Talent Search Model (CDE, 2012a).

Programming. In the state rules for the *Exceptional Children’s Education Act* (1 CCR 301-8), the State declared that the identification process should be used to guide

instruction and programming (§12.02(2)(c)). Gifted programming should reflect students' strengths and interests as determined by using the RtI problem-solving process (CDE, 2012a). The programming is expected to be a continuum of services in which ALPs are developed annually. The administrative units are required to develop an ALP for every gifted student. The ALP is considered "in educational planning toward post-secondary readiness outcomes and decision-making concerning subsequent programming for that student and be used in the articulation/transition process, preschool (if applicable) through grade 12" (1 CCR 301-8 §12.02(2)(f)). In terms of programming options, the CDE suggests 13 models/strategies to advance the learning process and 6 models for the learning content: Kaplan's Depth and Complexity Model, Tomlinson's Differentiation of Instruction Model and Parallel Curriculum Model, VanTassel-Baska's Integrated Curriculum Model, Renzulli's Schoolwide Enrichment Model, and Betts' Autonomous Learner Model (CDE, 2012a).

Personnel training. Administrative units must hire and retain on at least a half-time basis one qualified person to administer and monitor the implementation of gifted programs (1 CCR 301-8 §12.02(2)(j)(ii)). Colorado has a separate set of competency standards for three levels of endorsement in gifted education (CDE, n.d.a). With the recent revisions to existing CDE endorsements, in 2020, upon completing the necessary university coursework, teachers will be able to add a Core Gifted Endorsement, Specialist Endorsement, or a Gifted Education Director endorsement to their existing teaching licenses. To renew a license, an educator must complete six semester hours or ninety clock hours of professional development activities within the five-year period preceding the expiration date of a license (CDE, n.d.b).

Program evaluation. Procedures for evaluation and accountability are required by the state to be included in a comprehensive program plan (1 CCR 301-8 § 12.02(2)(i)), including:

- (a) Unified improvement plan addendum methods by which gifted student performance is monitored and measured for continual learning process and how such methods align with the state accreditation process;
- (b) Methods by which student affective growth is monitored and measured for continual development;
- (c) Methods for ensuring that gifted student performance (achievement and growth) and reporting are consistent with state accreditation and accountability requirements; and
- (d) Methods for self-evaluation of the gifted program including a schedule for periodic feedback and review. (1 CCR 301-8 § 12.02(i))

The administrative units are also required to inform parents, educator, and other required persons about the evaluation methods mentioned above. The current comprehensive program plan covers 2012–2016 school years.

Conclusion

Conceptions of giftedness evolved from high intelligence quotient (IQ) alone to talents and gifts in various areas, from innate abilities to potential needed to be developed. National recognition of the necessity for gifted education is demonstrated by the Javits' Act. While there is no federal mandate for gifted education, many states and school districts developed and provided gifted programming based on students' needs. Colorado, in its statutes and rules, defined gifted students, regulated identification procedures, and delineated programming requirements, personnel competency, and program evaluation and accountability.

Disability

The educational rights of students with disabilities were brought to attention because of the Civil Rights Movement and *Brown v. Board of Education* in 1954. Federal

involvement in educating students with disabilities became strong afterward (Yell, Drasgow, Bradley, & Justesen, 2004). Seminal development included creating the Bureau for the Education of the Handicapped within the U.S. Office of Education in 1966 and passing the *Education for All Handicapped Children Act* (P.L. 94-142) in 1975, which is the predecessor of the *Individuals with Disabilities Education Act* (IDEA). The purpose of the IDEA of 2004 is “to ensure that all children with disabilities have available to them a free appropriate public education that emphasizes special education and related services designed to meet their unique needs and prepare them for further education, employment, and independent living” (20 U.S.C. 1400(d)(1)(A)). Scholars summarize six principles in Part B of the IDEA that oversees the educational services for students with disabilities aged 3–21: (a) zero reject, (b) protection in evaluation of eligibility, (c) free appropriate public education (FAPE), (d) least restrictive environment (LRE), (e) procedural safeguards, and (f) parental participation (Yell et al., 2004).

In addition to the IDEA, *Section 504 of the Rehabilitation Act of 1973* and the *Americans with Disabilities Act* (ADA) entail the civil rights of individuals with disabilities. Section 504 “entitles children to a public education comparable to that provided to children who do not have disabilities” (Aron & Loprest, 2012, p. 99); it focuses on “guaranteeing equal access to educational services for students with disabilities” (Chapman, 2015, p. 110). The Section 504 Plan is a legal document that ensures qualified students the access to a free appropriate public education and the least restrictive environment. The implementation of a Section 504 Plan “is not an option but the law” (Schultz, 2012, p. 127). Unlike Section 504, the ADA requires all entities, receiving public funding or not, to provide qualified individuals with equal access to

employment, public accommodations, transportation, government services, and telecommunications. Smith (2001) explained the different functions among the IDEA, Section 504, and the ADA regarding the education of individuals with disabilities: “Because Section 504 and the ADA use a different definition of *disability* than the one used in the IDEA, many children who are not protected under the IDEA are eligible for protection and services under Section 504 and the ADA” (p. 342).

Current Special Education Categories

The IDEA of 2004 currently has 13 special education categories: autism, deaf-blindness, deafness, emotional disturbance, hearing impairment, mental retardation (replaced by “intellectual disability” in 2013), multiple disabilities, orthopedic impairment, other health impairment, specific learning disability, speech or language impairment, traumatic brain injury, and visual impairment including blindness (IDEA, 2004). The three largest groups are those with specific learning disabilities, speech or language impairments, and other health impairments (see Table 1; Institute on Disability, 2016).

Table 1

Students Ages 6-21 Served Under IDEA as a Percentage of Population (Institute on Disability, 2016)

Diagnostic Category	Percentage
Specific learning disability	38.96
Speech or language impairment	17.50
Other health impairment	14.42
Autism	8.76
Intellectual disability	7.02
Emotional disturbance	5.94
Multiple disabilities	2.13
Developmental delay	2.43
Hearing impairment	1.15
Orthopedic impairment	0.79
Traumatic brain injury	0.44
Visual impairment	0.43
Deaf-blindness	0.02

In order to qualify for IDEA to receive special education and related services, a child or youth must first have a disability (or disabilities) as outlined in the IDEA. In addition to the educational category of disabilities, except for the specific learning disability category, there must be evidence that a disability “adversely affects a child’s educational performance” (34 C.F.R. § 300.8(c)(1)–(13)). So far, seven states explicitly define “educational performance” as performance in academic and nonacademic areas

(i.e., Alabama, Georgia, Indiana, Maine, Montana, Vermont, and West Virginia); three states specify an adverse impact of a disability as below-grade-level performance (i.e., Kentucky, Montana, Vermont) (see Table 2; Thomas, 2016).

Table 2

Definitions of “Adversely Affect” and “Educational Performance” in State Law/Regulations

State	Definition of “Adversely Affect”	Educational Performance
Alabama		Academic, social/emotional, and/or communication skills
Alaska		Performance in school, or, in the case of a preschool child with a disability, performance in an age-appropriate setting
Georgia		Academic, functional and/or developmental
Indiana	A consistent and significant negative impact	Academic achievement, functional performance, or both
Kentucky	The progress of the child is impeded by the disability to the extent that the educational performance is significantly and consistently <i>below the level of similar age peers</i> [emphasis added]	
Maine	Have a negative impact that is more than a minor or transient hindrance, evidenced by findings and observations based on data sources and objective assessments with replicable results. An adverse effect on educational performance does not include a developmentally appropriate characteristic of age/grade peers in the general population.	Performance in those <i>academic and functional areas</i> [emphasis added]. Educational performance for a child age 3–5 means performance in age appropriate developmental activities across five domains of development (communication, physical, cognitive, self-help/adaptive, and social/emotional) in an educational setting. Functional performance means how the child demonstrates his/her skills and behaviors in cognitive, communication, motor, adaptive, social/emotional and sensory areas.

Table 2 (continued)

State	Definition of “Adversely Affect”	Educational Performance
Montana	There is evidence that measures of student performance indicate a pattern of <i>educational, developmental, or functional attainment or achievement below the student’s age or grade level</i> [emphasis added] based on state approved K–12 content standards that can wholly or in part be attributed to the disabling condition.	Achievement tests, grades, behavioral or developmental assessment, classroom based assessment, observations, progress monitoring, or criterion-referenced tests, etc.
Vermont	Function <i>significantly below grade norms* compared to grade peers</i> [emphasis added] in one or more of the basic skills (oral expression, listening comprehension, written expression, basic reading skill, reading comprehension, math calculation, math reasoning, and motor skills).	Measures of school performance: Individually administered nationally normed achievement test, normed group administered nationally achievement tests, grades, curriculum-based measures, criterion-referenced or group-administered criterion-referenced assessments, student work, language samples or portfolios.
West Virginia	A harmful or unfavorable influence of the disability on the student’s performance.	Both academic areas (reading, math, communication, etc.) and nonacademic areas (daily life activities, mobility, pre-vocational and vocational skills, social adaptation, self-help skills, etc.).

*Significantly below grade norms = the 15th percentile or below, or a 1.0 standard deviation or more below the mean, or the equivalent, as reflected by performance on at least three of the six following measures of school performance. Taken from “Decoding Eligibility under the IDEA: Interpretations of “Adversely Affect Educational Performance,” by J. L. Thomas, 2016, *Campbell Law Review*, 38(1), 73–107.

Current Identification Approaches in Relation to Education Reform

Among the 13 special education categories, specific learning disability requires different identification approaches. In the IDEA of 2004, local educational agencies were prohibited from using the IQ-achievement discrepancy model to determine whether a student has a specific learning disability (20 U.S.C. 1414 § 614(a)(6)(A)). Instead, the local educational agencies were advised that they “may use a process that determines if the child responds to scientific, research-based intervention as a part of the evaluation procedures” (20 U.S.C. 1414 § 614(a)(6)(B))—this was considered the Response-to-Intervention statute (Hale, 2008).

Response to Intervention was developed to allow schools to provide early intervention to students who otherwise would have to wait until they met the criteria of the discrepancy model (Fuchs & Fuchs, 2006)—avoiding unnecessary labels to receive intervention services is considered as an advantage of RtI (Grosche & Volpe, 2013). The original design of RtI has three tiers: universal, targeted, and intensive/individualized (Fuchs & Fuchs, 2001). Equipped with two approaches, standard protocols and problem-solving (Table 3), RtI has a final comprehensive evaluation phase to distinguish specific learning disabilities from behavior disorders and intellectual disabilities (Fuchs & Fuchs, 2001). The standard protocols approach is favored by Fuchs and Fuchs over the problem-solving approach because the former is supported by “the available scientific evidence” (Fuchs & Fuchs, 2001, p. 59).

Table 3

Two Approaches of Response to Intervention

Aspects	The Standard Protocols Approach	The Problem-Solving Approach
Nature of interventions	Preventative	Preventative
	Scripted, prescriptive	Tailored
	Research-based instructions that benefit the majority of students	Individually-tailored instructions to meet students' learning needs
Presupposition	Integrated with standard methods to address behavioral and attention deficits	Academic deficiencies impede learning motivation
Features	<ul style="list-style-type: none"> To “promote the acquisition of new skills” (Fuchs & Fuchs, 2007, p. 16). To “ensure that all learners receive optimum instruction to help them make appropriate progress” (Hughes, Rollins, & Coleman, 2011, p. 3). 	This approach “relies on a system of increasingly intensive interventions that are planned and implemented for a particular student... Because each child’s needs are addressed individually, professional expertise and collaborative consultation are essential for success” (Hughes et al., 2011, p. 4).

Note. Taken from “Responsiveness-to-intervention: A Blueprint for Practitioners, Policymakers, and Parents,” by D. Fuchs and L. Fuchs, 2001, *TEACHING Exceptional Children*, 38(1), 57–61, and from “A Model for Implementing Responsiveness to Intervention,” by L. Fuchs and D. Fuchs, 2007, *TEACHING Exceptional Children*, 39(5), 14-20.

The Council for Exceptional Children (CEC, 2008) urged that an RtI process “[m]ust be viewed as a schoolwide initiative, with special education as an explicit part of the framework, spanning both general and special education in collaboration with facilities” (p. 1). Today, the RtI implementation is merged with Positive Behavioral Interventions and Supports (PBIS), and the new framework is called Multi-Tiered System

of Supports (MTSS) (Erchul & Ward, 2016). According to ESSA, MTSS is “a comprehensive continuum of evidence-based, systemic practices to support a rapid response to students’ needs, with regular observation to facilitate data-based instructional decisionmaking” (P.L. 114–95 §8002 (33)). Federal funds are available to support teachers of students with disabilities, other teachers, and instructional staff to gain knowledge and skills of using MTSS.

Available evaluation reports of the implementation of MTSS are from Kansas. The Kansas MTSS framework has three core elements (curriculum, instruction, and assessment) that are supported by leadership, professional development, and an empowering culture (WestEd, 2015). Based upon the evaluation conducted in 2014, more than a third of schools in Kansas were implementing MTSS; nearly 72% of responding schools were at the initial implementation stage (WestEd, 2015). The majority of schools implemented interventions in reading, math, and behaviors (Kansas Technical Assistance System Network, 2016; WestEd, 2015). Educators in Kansas perceived a positive impact on student outcomes by using these indicators: the scoring benchmark, proficiency level on the state assessment, the rate of discipline referrals, and the rate of special education referrals (WestEd, 2015). The 2015 report suggested Kansas invest in a statewide data system to document the impact of MTSS. The report also indicated challenges to implementing MTSS with fidelity, including (a) staff and leadership, (b) course selection and credit accumulation at the secondary school level, (c) time, (d) the integration of MTSS content areas, and (e) staff knowledge and skill in designing intensive interventions (WestEd, 2015).

The MTSS framework in Colorado evolved over time. Today, the Colorado MTSS framework has five essential components: (a) team-driven shared leadership, (b) data-based problem solving and decision-making, (c) family, school, and community partnering, (d) layered continuum of supports, and (e) evidence-based practices (CDE, 2016b). A school-based self-assessment of the implementation of MTSS is provided by the CDE, and that self-assessment is optional.

Identification: Pros and Cons

Classifying and labeling students are basic practices in special education, and they have presumed advantages and disadvantages (Ysseldyke, Algozzine, & Thurlow, 2000). Labels not only permit “official agencies to allocate assistance and provide progress reports” but also serve as “admission tickets to alternative education services” (Ysseldyke et al., 2000, pp. 107, 109). Nonetheless, labels can cause undesired effects. Professionals argued that disability categories are “irrelevant to the instructional needs of students” or do not “necessarily lead to improved education treatment” (Ysseldyke et al., 2000, pp. 109, 110). In recognizing the legitimacy of special education in public education, Kauffman (1999) stated, “If we reform education in the right way, there will be no more need for labels or so-called special services because education will be a seamless and flexible web of indistinguishable supports for all students” (p. 245). Unfortunately, the education system is unlikely to get rid of the practice of identifying students by category. Ysseldyke et al. in 2000 already said that professionals were shifting their attention from labeling effects to placement appropriateness and disproportionality of minority students in special education. Sullivan (2011), for example, urged researchers to consider

contextual and systemic factors when identifying English language learners for special education.

Programming

Regarding education programs and classroom instruction, the *No Child Left Behind Act of 2001* and the IDEA of 2004 both require the use of scientifically based research to bridge the gap between research and practice (Cook, Tankersley, & Landrum, 2009). Sharing the same purpose— “to determine and denote effective practices”—terms such as best practices, evidence-based practices, and scientifically based research programs, however, “have distinct meanings and imply different standards of rigor related to their empirical support” (Cook & Cook, 2011, p. 72). Evidence-based practices (EBPs) are different from research-based practices in many ways. In general, to be considered as EBPs, supporting studies must demonstrate causal relationships, meet indicators of quality research studies and prescribed level of effect, and be supported by more than one study of acceptable quality and design (Cook & Cook, 2011).

When Cook and colleagues proposed guidelines for evidence-based practices in 2009, they stated, “special educators have not yet established definitively which practices are or are not evidence-based or settled on a systematic process for determining evidence-based practices” (Cook et al., 2009, p. 366). Yet, in the past 10 years, experts and organizations developed various sets of indicators to determine the quality of research studies which could become supporting studies of effective practices. In a special issue of *Exceptional Children* in 2005, professionals proposed quality indicators for experimental studies, quasi-experimental studies, qualitative studies, correlational research, and single-subject research for special education. Among them, indicators for group experimental

and quasi-experimental research (Gersten et al., 2005) and for single-subject research (Horner et al., 2005) became the foundation of *CEC Standards for Evidence-Based Practices in Special Education* (CEC, 2014).

Review protocols at What Works Clearinghouse (WWC) also contributed to the development of CEC standards for determining EBPs. Having established its review protocols and standards, What Works Clearinghouse, after 2010, published reports on 16 interventions that demonstrate positive or potentially positive effects on outcomes for children and youth with disabilities (WWC, n.d.). In 2009, the National Standards Project at the National Autism Center first identified EBPs for individuals with Autism Spectrum Disorders (ASD) under age 22. Having completed the review, the Project updated and extended the search for studies on individuals ages 22 and older. The National Professional Development Center on ASD also conducted a similar review process first accomplished in 2010 and then updated findings a few years later. Sources of inventories of EBPs in special education is provided in Table 4.

Table 4

Sources of Effective Practices Inventories in Special Education

Sources	Review Protocols and Standards	Topics	Interventions
What Works Clearinghouse (WWC, n.d.)	WWC protocols and standards	Children and youth with disabilities	16 interventions that demonstrate positive or potentially positive effects
National Autism Center (2009): National Standards Project phase 1	The Scientific Merit Rating Scale	Individuals with ASD under age 22	11 established interventions for children and youth
National Professional Development Center on ASD (Odom, Collet-Klingenberg, Rogers, & Hatton, 2010)	Criteria discussed in publications	Individuals with ASD under age 22	24 EBPs
National Professional Development Center on ASD (Wong et al., 2013)	An individual standard article evaluation process incorporation with criteria at What Works Clearinghouse and the National Standards Project at the National Autism Center	Individuals with ASD under age 22	27 EBPs
National Autism Center (2015): National Standards Project phase 2	The Scientific Merit Rating Scale	Individuals with ASD	<ul style="list-style-type: none"> • 14 established interventions for children, adolescents, and young adults under 22 years of age • One established intervention for adults ages 22 and older

Another source of inventory is the National Technical Assistance Center on Transition (NTACT). With a goal to assist stakeholders in “implementing evidence-based and promising practices and predictors that promote positive post-school outcomes for all students with disabilities” (NTACT, n.d., para. 1), in 2015 the Center began identifying evidence-based, research-based, and promising practices which have relevant outcome areas in education, employment, and independent living. Currently, there are 11 evidence-based practices, 47 research-based practices, and 73 promising practices (Test, 2016).

Due to varied educational contexts and varied needs of students with disabilities, evidence-based practices are not guaranteed to work “for every student in every situation” (Cook, Tankersley, Cook, & Landrum, 2008, p. 72; Odom et al., 2005). Special educators need to remain flexible in making instructional decisions (Cook et al., 2008), and they are encouraged to become knowledgeable about credible sources to classify EBPs and apply those classification protocols to identify promising practices (The Council for Exceptional Children’s Interdivisional Research Group, 2014).

Conclusion

The law mandates special education and related services for eligible students. While placement appropriateness and disproportionality of minority students in special education are gaining more attention than labeling issues, identification of special education students is still problematic. States developed varied definitions of how a disability adversely affects a student’s educational performance. The MTSS expanded the identification of students with specific learning disabilities to a schoolwide supporting system. However, more studies are needed to advance the implementation of the MTSS.

Twice Exceptionality

The Evolution of the Legislative Acts Regarding Twice Exceptionality

Twice exceptionalism is not new to the 21st century. Earlier in 1923, Hollingworth described how children with both high IQ and special conditions survived schools: “Whatever the vicissitudes of fate—illness, absence, special disability—a child of superior general capacity manages to hold his own, at least” (Hollingworth, 1923, p. 201). The first *gifted and talented* definition, provided in the Marland Report, emphasized the distinct learning needs of gifted students (Marland, 1971). Adopting this definition was done with good intentions. Unfortunately, districts interpreted state and local requirements in ways that were different from the original intent of the legislation (Ross, 1993). For example, many districts’ identification practices relied on test score cutoffs or IQ and did not address a broad range of talents nor did these practices help find gifted students in different areas other than exceptional intellectual ability. Consequently, students from diverse cultural backgrounds, the economically disadvantaged, females, underachievers, students with artistic talent, and students with disabilities were underrepresented in gifted programs (Ross, 1993).

Since the 1980’s, federal and state grants have been initiated to support services and programs for twice-exceptional students (Baldwin et al., 2015). Special attention has been given to gifted students whose potential may not easily be shown by standardized testing. The *Jacob K. Javits Gifted and Talented Students Education Act* gave funding priority to “identifying students missed by traditional assessment methods (including children who are economically disadvantaged, limited-English-proficient, or have

disabilities) and to education programs that include gifted and talented students from such groups” (U.S. Department of Education, 1993). The Javits Act has been the main source of funding for gifted education studies (Jolly & Kettler, 2008). Although the Javits Act was defunded during 2011–2013 and restored by Congress in 2014, it remains the only federal program that supports research, projects, and personnel training to equip schools for identifying and meeting the needs of under-represented gifted students (CEC, n.d.; Jolly & Kettler, 2008). The funding priorities remained the same with the passing of the *Every Student Succeeds Act* in 2015.

The reauthorization of the *Individuals with Disabilities Education Act of 2004*, where the ability-achievement discrepancy model was removed from the definition of specific learning disabilities, has broadened the discussions concerning how to identify gifted students with learning disabilities (Assouline & Whiteman, 2011). The Response to Intervention (RtI) model was adopted as a part of the evaluation procedures to identify students with specific learning disabilities (IDEA, 2004). This legislative change led experts in the gifted education field to recommend that the RtI model be applied in the identification of twice-exceptional students (CEC, 2009; NAGC, 2013a) and, later on, to call for including gifted education specialists on an RtI team (NAGC, 2013a). Other than that, the existing federal definition of gifted and talented, delineated in the *No Child Left Behind (NCLB) Act of 2001*, is similar to the one introduced in the Marland report. Different from the definition in the Marland report, the definition in NCLB did not include psychomotor ability as one of the high-performance areas. The definition reads:

The term gifted and talented . . . means 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 or activities not ordinarily provided by the school in order to fully develop those capabilities. (“No Child Left Behind (NCLB) Act of 2001,” 2002)

The *Every Student Succeeds Act*, the successor to NCLB, has not yet provided a definition of the gifted and talented but retained the Javits program, which supports the identification of and service for gifted students, especially “minority, economically disadvantaged, English language learners, and children with disabilities” (NAGC, n.d.b, p. 2). Retention of the Javits program holds promise for improving the education of the twice-exceptional students.

In addition to the retention of the Javits program, the recognition of twice exceptionality in state law embodies the rising awareness that the needs of gifted students with disabilities must be addressed. Nowadays, some states adopt either the phrase or concept of twice exceptionality in their definitions of the gifted and talented. Many more states consider disabilities as vital factors to determining identification and/or services provision for gifted students (Table 5). Colorado literally used “gifted students with disabilities (i.e., twice exceptional)” in its state rules for the *Exceptional Children’s Education Act* (1 CCR 301-8, 12.01(12)). West Virginia used “exceptional gifted” for gifted students in grades nine through twelve who are also identified with “at least one of the following: Behavior disorder, specific learning disabilities, psychological adjustment disorder, underachieving or economically disadvantaged” (WV Code § 18-20-1, 2016). West Virginia also defined historically under-represented gifted population as those “whose giftedness may not be apparent due to low socioeconomic status, a disability in accordance with this policy, or a background that is linguistically or culturally different” (West Virginia 126CSR16, Chapter 4, Section 3G, 2014). Alabama stated that gifted students can be found in “in all areas of human endeavor” which led to the efforts to

identify students “among all populations ... as well as students with disabilities”

(Alabama Administrative Code, 290-8-9.12(1), (2)(b)). Further, Georgia and Arizona advised educational agencies to consider possible disadvantages caused by disabilities in identification and/or the provision of services (NAGC & CSDPG, 2015).

Table 5

Examples of Twice Exceptionality Included in State Laws

State	Mandated Areas	Funding	Definition	Identification/Referral	Provision of Services
Alabama	Identification & Services	Partial	GT students “can be found in all populations, across all economic strata, and <i>in all areas of human endeavor</i> [emphasis added].”	“Efforts must be made to identify students among all populations and socioeconomic groups as well as <i>students with disabilities</i> [emphasis added] and students who are Limited English Proficient (LEP).”	
Arizona	Identification & Services	No funding		“Identification of gifted pupils ... shall be based on tests or subtests that are demonstrated to be effective with special populations including <i>those with a disability</i> [emphasis added] or difficulty with the English language.”	“The governing board shall modify the course of study and adapt teaching methods, materials and techniques to provide educationally for those pupils who are gifted and possess superior intellect or advanced learning ability, or both, but may have <i>an educational disadvantage resulting from a disability</i> [emphasis added] or a difficulty in writing, speaking or understanding the English language due to an environmental background in which a language other than English is primarily or exclusively spoken.”
Georgia	Identification & Services	Full		“... tests or procedures used in the referral process and to determine eligibility for <i>gifted education services</i> [emphasis added] ... shall be non-discriminatory with respect to race, religion, national origin, sex, <i>disabilities</i> [emphasis added], and economic background.”	

Table 5 (continued)

State	Mandated Areas	Funding	Definition	Identification/Referral	Provision of Services
Colorado	Identification & Services	Partial	“Gifted students include <i>gifted students with disabilities (i.e., twice exceptional)</i> [emphasis added] and students with exceptional abilities or potential from all socio-economic, ethnic, cultural populations.”		
West Virginia	Identification & Services	Partial	Historically under-represented gifted population are those “whose giftedness may not be apparent due to low socioeconomic status, a disability in accordance with this policy, or a background that is linguistically or culturally different.” “The term ‘exceptional gifted’ means those students in grades nine through twelve identified as gifted and at least one of the following: Behavior disorder, specific learning disabilities, psychological adjustment disorder, underachieving or economically disadvantaged.”	“[T]o determine that a student is eligible for special education services as an exceptional gifted student in grades nine through twelve using one or more of the following criteria: a. The eligibility criteria for one or more of the disabilities as defined in this section; and/or b. The definition for economically disadvantaged; and/or c. The definition for underachievement, which takes into consideration the student's ability level, educational performance and achievement levels; and/or d. The definition for psychological adjustment disorder as documented by a comprehensive psychological evaluation.”	“If the student is eligible as exceptional gifted, the district must develop an IEP. If the student is not eligible as exceptional gifted, the IEP Team must write a four-year plan that appropriately addresses the student’s educational needs.”

The Evolution of Professional Initiatives Regarding Twice Exceptionality

Along with the changes in legislation and administrative rules, initiatives led by professional organizations shaped how twice-exceptional students are served today. Professionals interested in twice exceptionality formed The Association of Gifted (TAG) Committee on the Gifted/Handicapped in 1975 (Whitmore, 1981) and the National Twice-Exceptional Community of Practice (2E CoP) in 2014 (Baldwin et al., 2015). The TAG Committee estimated 2E prevalence, raised public awareness, recruited individuals with disabilities to serve on the committee, sponsored topical conferences, and developed a position statement on 2E (Nielsen, 2002; Porter, 1982; Whitmore, 1981). Using a consensus approach, the National 2E CoP created an “agreed-on definition” of *twice-exceptional individuals*, hoping to help people gain more understanding of twice exceptionality and bring about necessary supports as a result. The definition reads:

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.

2E students, who may perform below, at, or above grade level, require the following:

- Specialized methods of identification that consider the possible interaction of the exceptionalities,
- Enriched/advanced educational opportunities that develop the child’s interests, gifts, and talents while also meeting the child’s learning needs,
- Simultaneous supports that ensure the child’s academic success and social-emotional well-being, such as accommodations, therapeutic interventions, and specialized instruction, and

Working successfully with this unique population requires specialized academic training and ongoing professional development. (Baldwin et al., 2015, pp. 212–213)

This practitioner-oriented definition is crafted with characteristics of twice-exceptional individuals, ideal identification methods and approaches to supporting these students' educational needs, as well as best practices to address the training needs of the personnel who work with them. The definition is important in "creating common language that can be shared among general educators, gifted educators, and special educators" and is likely to shape "legislation, teacher preparation programs, parameters of eligibility, and program accountability" in relation to educational services for twice-exceptional learners (Roberts, Pereira, & Knotts, 2015, p. 217). While the National 2E CoP is still working on disseminating information (Baldwin et al., 2015), the Community expects its definition to be "a means to building awareness, promoting understanding, encouraging advocacy, and supporting best practices for students who are 2E" (Coleman & Roberts, 2015, p. 256).

To conclude, the evolution of understanding twice exceptionality is shown in how the federal and state governments defined giftedness and created a rationale to identify and serve this underrepresented student body. Twice-exceptional students, like gifted students in general, need differentiated education and fair identification procedures. A new education law, ESSA, will take effect in the school year of 2017–2018. Although ESSA did not re-define the gifted and talented, it retained the Javits education program that gives a priority to gifted students with disabilities. The recognition of twice exceptionality is on the rise. States where the coexistence of giftedness and disabilities is addressed in state law may have better opportunities to improve their practices than states where gifted education is not mandated.

The Right to Education for Twice-Exceptional Learners

State and local educational agencies do have legal obligation to meet the needs of twice-exceptional learners. Different from the provision of gifted education, state and local educational agencies that receive federal funding, including public charter schools, must provide special education and related services for eligible individuals and cannot discriminate against them.

Individuals with Disabilities Education Act of 2004. When a more inclusive perspective is adopted—both academic and non-academic areas are encompassed in the definition of educational performance—the needs of twice-exceptional students are more likely to be addressed (Eig, Weinfeld, & Rosenstock, 2014). In *Mr. and Mrs. I v. Maine School Administrative District No. 55* (1st Cir. 2005), the Court of Appeals believed that Asperger’s Syndrome that caused a student’s social-emotional difficulties could adversely affect her educational performance, given the child excelled academically (Mr. and Mrs. I, 2007). In view of the child’s poor ability to communicate, the Court considered social skills and pragmatic-language instruction as special education within the meaning of IDEA. As a result, a broad definition of educational performance benefited that twice-exceptional student. Even though some professionals promote a broad, inclusive definition of educational performance (Thomas, 2016), according to the Department of Education (2015), “some local education agencies (LEA) are hesitant to conduct initial evaluations to determine eligibility for special education and related services for children with high cognition” (para. 2). In fact, the phenomenon is not new. The National Education Association (NEA) already pointed out that some twice-

exceptional students may be excluded from the referral process for possible special education evaluation (NEA, 2006). Performing on grade level may be the reason that 2E students are excluded from a special education referral (Crepeau-Hobson & Bianco, 2011; Morrison & Rizza, 2007).

In *Letter to Dr. Jim Delisle* (U.S. Department of Education, 2013), the U.S. Department of Education responded to Dr. Delisle's request for clarification of applying IDEA to students who have high cognition and who may have specific learning disabilities:

[I]t would be inconsistent with the IDEA for a child, regardless of whether the child is gifted, to be found ineligible for special education and related services under the SLD category solely because the child scored above a particular cut score established by State policy. (U.S. Department of Education, 2013, para. 4)

In connection with the clarification letter, the Department restated the obligation of each local education agency to "evaluate all children, regardless of cognitive skills" (2015, para. 2). In light of the Department's statement, students' needs for special education and gifted education are not exclusive of each other.

The adequacy of educational benefits under IDEA is another issue with regard to maximizing the potential of high-ability students with disabilities. In *Amy Rowley v. Hendrick Hudson Central School District*, a case of a student with a hearing impairment as well as above-120 IQ, the Supreme Court interpreted the requirement of a free appropriate public education: (a) a school has complied with the IDEA procedures and (b) the IEP enabled a child to receive educational benefits (Yell, Katsiyannis, & Hazelkorn, 2007). The Rowley case drew people's attention to *educational benefits*—whether or not the education and related services are enabling students with disabilities to reach their maximum potential (Yell et al., 2007). However, including the Rowley Court,

“post-*Rowley* courts have reviewed passing grades and grade advancement as important factors when determining if a student received educational benefit” (Johnson, 2003, p. 565). Consequently, some schools “have failed to consider a student’s specific cognitive ability in view of grade-level performance” (Eig et al., 2014, p. 20). In fact, the issue for 2E students under IDEA is beyond the access to specialized services; it is about having higher expectations for education outcomes (Johnson, 2003; Yell et al., 2007).

Most recently, in March 2017, the *Endrew F. v. Douglas County School Dist. RE–1* case served as a wake-up call for the need to provide a higher standard of educational benefits for students with disabilities. The Supreme Court was presented with the following: “What is the level of educational benefit that school districts must confer on children with disabilities to provide them with the free appropriate public education guaranteed by the Individuals with Disabilities Education Act, 20 U.S.C. § 1400 et seq.?” (Endrew F. v. Douglas County School Dist. RE–1, 2015). Currently, six Circuit Courts (i.e., 2, 4, 7, 8, 10, and 11) adopted lower standards: some, more than trivial or de minimis; the First Circuit has no particular position; the Ninth Circuit has a confused standard, depending on the panels; and “the Third, Fifth, and Sixth Circuits have a ‘meaningful educational benefit’ standard which is considered better than ‘some’ or ‘more than trivial’” (Yell & Bateman, 2017). The U.S. Supreme Court unanimously rejected the ‘de minimis’ standard applied by the 10th Circuit where the Endrew case was first heard. The Supreme Court declared, “[A] student offered an educational program providing ‘merely more than *de minimis*’ progress from year to year can hardly be said to have been offered an education at all” (Endrew F. v. Douglas County School Dist. RE–1, 2017, p. 14).

The Supreme Court, though, declined to endorse any standards for determining sufficient educational benefits nor to elaborate on what appropriate progress in a given IEP should look like, saying that “The IDEA demands more. It requires an educational program reasonably calculated to enable a child to make progress appropriate in light of the child’s circumstances” (Endrew F. v. Douglas County School Dist. RE–1, 2017, pp. 14–15). This affirmation from the Supreme Court holds merits for providing educational services to twice-exceptional students. Twice-exceptional students, if formally identified for special education services, now must receive educational services that will extend their learning beyond a minimum threshold and afford them the opportunity to achieve to their full potential in school.

Section 504 of the Rehabilitation Act of 1973. Besides IDEA, twice-exceptional students can seek services and accommodations through Section 504 if they show evidence that their physical or mental impairments substantially limit major life activities, including learning (34 C.F.R. 104.3(j)(2)(ii)). Unfortunately, the vague guidelines about educational services under Section 504 pose challenges for schools to meet the needs of 2E learners. School personnel may not be familiar with regulations (Schultz, 2012). In some cases, school personnel do not acknowledge that students in advanced programs may have special needs or that students in special education can receive gifted education as well (Besnoy et al., 2015; Ritchotte & Matthews, 2012; Schultz, 2012). In response to the provision of 504 Plans, parents reported things such as they needed to fight for a 504 Plan, the school did not provide a 504 Plan because the student was succeeding academically, and the counselor insisted that one 504 meeting in a year was enough and denied possibilities to make changes to a 504 plan (Besnoy et al., 2015; Ritchotte &

Matthews, 2012). In addition, state and local educational agencies have their own interpretations regarding the development and implementation of a Section 504 Plan (Bennett & Frank, 2009). Foley-Nicpon (2015) had this observation: “[A] student identified as needing a 504 Plan in one school may not meet the requirements in another” (p. 251). As a result, this inconsistency may impede the provision of necessary resources to meet 2E students’ needs.

In addition to an IEP or Section 504 Plan that addresses accommodations for learning and testing, a 2E student needs a gifted education plan (e.g., advanced learning plan) to develop areas of strengths (Crepeau-Hobson & Bianco, 2011). The question is what can be done to better implement a gifted education plan and an IEP or Section 504 Plan in school? “Dual emphasis,” for example, is a parallel approach to address a student’s strengths and challenges simultaneously (CDE, 2012b). As the National 2E CoP addressed in its definition, twice-exceptional learners need (a) learning opportunities that develop their gifts and talents while meeting their learning needs and (b) simultaneous supports for academic achievement and well-being (Baldwin et al., 2015). The meaning of developing suitable, comprehensive education plans goes beyond following the laws.

In conclusion, pursuing education equity for twice-exceptional students is an obligation, not an option. Parents/guardians and schools need to make decisions based on students’ needs. As Alabama’s law states, gifted children and youth “can be found in all populations, across all economic strata, and in all areas of human endeavor” (Alabama State Department of Education, 2014). If educators are aware of educational and clinical categories of disability and acknowledge that giftedness and disabilities can coexist, they should know that twice-exceptional learners have multi-dimensional needs: mental,

physical, and social-emotional. The ethical issue of educating a whole student can equal or surpass the responsibility to comply with federal regulations.

The Complexity of Twice Exceptionality

The manifestation of giftedness and disabilities is an example of *when 1 + 1 ≠ 2*. Given Ronksley-Pavia's (2015) Venn diagram to illustrate a model of twice exceptional (Figure 1), the complexity of twice exceptional cannot be explained fully by just citing theories in special education and gifted education. There are multiple interpretations of disability and giftedness, and there is no perfect answer to "How extensive or profound an effect does a particular handicap have on the development of intelligence or talent?" (Maker, 1977, p. 12). Both practitioners and researchers have to tolerate a certain level of uncertainty and discomfort when approaching issues around student identification because there is no typical 2E learner profile. In addition, insufficient numbers of empirical studies have led to a lack of understanding of how giftedness interacts with various disability categories (Karnes, Shaunessy, & Bisland, 2004).

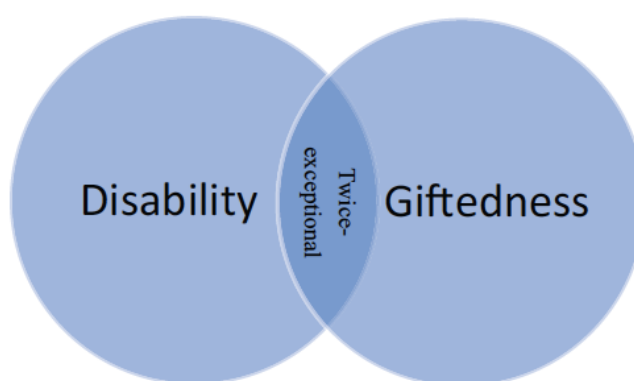


Figure 1. Diagram of twice exceptionality. Retrieved from "A Model of Twice-Exceptionality," by M. Ronksley-Pavia, 2015, *Journal for the Education of the Gifted*, 38, p. 4.

No typical twice-exceptional learner profile. A long-standing perception about gifted and talented individuals is their above-average performance. The first federal definition of giftedness said gifted children are “capable of high performance,” including “those with demonstrated achievement and/or potential ability” (Marland, 1971, ix). Gifted and talented students, defined in NCLB Act of 2001, are those who “give evidence of high achievement capability” (20 USC 7801§9101(22)). By following the law, teachers or diagnosticians who are responsible for an identification referral must seek evidence of high performance, for example scoring at the 95th percentile or above on a standardized test or observation tool. However, the National 2E CoP indicated that, for twice-exceptional students, the interaction between their disabilities and gifts and talents may end up with three results: “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 et al., 2015, p. 212). Furthermore, twice-exceptional students “may perform below, at, or above grade level” (Baldwin et al., 2015, p. 212). No wonder educators need specialized training and professional development in order to properly identify and provide educational services for this unique population.

In *Redefining Giftedness for a New Century*, NAGC (2010) stated, “The development of ability or talent is a lifelong process.... Various factors can either enhance or inhibit the development and expression of abilities” (NAGC, 2010, para. 2). Twice-exceptional learners may not demonstrate gifted behaviors due to barriers to attainment, such as impoverished learning environment or disabilities that prevent individuals from performing adequately on standardized tests. Opportunities to learn are

also opportunities to develop gifts and talents. In a phenomenological study, Vespi and Yewchuk (1992) observed that gifted students with learning disabilities had negative approaches to academic tasks and were bored with repetitious assignments. Students tended to rush through learning tasks with little attention to the quality of the work because of the fear of failure. However, they could spend extended periods of time on activities of their interests. Vespi and Yewchuk (1992) also saw constant frustration from gifted students with learning disabilities. In this case, students' problem behaviors (e.g., acting out, being disruptive, showing no motivation) may keep teachers from referring students for gifted identification and may become teachers' priority to deal with in regular classrooms. However, few teachers see that those problem behaviors are signs of students' incapability to fit in regular classroom tasks rather than incapability to learn (Clark, 2013). Very often, time and resource constraints do not support classroom teachers' effort to provide those struggling students with advanced learning opportunities that can be outlets for their exceptional abilities.

The unknown about twice exceptionality remains bigger than what educators and researchers know. Cognitive or psychosocial characteristics of individuals with disabilities do not always apply to twice-exceptional individuals. Likewise, gifted characteristics cannot fully represent twice-exceptional individuals. Quite a few empirical studies conducted after 2010 help educators validate how twice-exceptional learners function mentally and emotionally (Table 6). For example, teachers may have had observations about gifted students with autism spectrum disorders. However, an empirical study on students' cognitive and academic profiles did not come out until 2012 (Foley-Nicpon, Assouline, & Stinson, 2012). Because it is hard to establish patterns of

twice-exceptional students, researchers repeatedly call for a comprehensive analysis/assessment of learner profiles in order to have correct diagnosis and suitable interventions (Foley-Nicpon, Assouline, et al., 2012; Reis et al., 2014).

Table 6

Characteristics of Gifted Learners with Specific Learning Disabilities (SLD), Attention Deficit Hyperactivity Disorder (ADHD), and Autism Spectrum Disorders

Student Group	Cognitive & Academic	Psychosocial
Gifted/SLD	<p>With written language difficulties (Assouline, Foley Nicpon, & Whiteman, 2010):</p> <ul style="list-style-type: none"> ○ Verbal abilities well developed and more advanced than nonverbal abilities. ○ Written language scores are much lower than expectations based on intellectual abilities. <p>May not be likely to meet criteria for SLD diagnosis because of showing no achievement deficits (Lovett & Sparks, 2010).</p>	<p>With written language difficulties (Assouline et al., 2010): Huge varieties in psychosocial characteristics. Some reported feeling optimistic about their behavior, emotions, relationships, and environment; others reported experiencing emotional and behavioral difficulties.</p>
Gifted/ADHD	<p>Significantly greater creativity for G/ADHD than gifted peers without ADHD (Fugate, Zentall, & Gentry, 2013).</p>	<ul style="list-style-type: none"> ● G/ADHD students have (a) lower self-esteem and (b) less positive impressions of their behavior and overall happiness than gifted students without ADHD (Foley-Nicpon, Rickels, Assouline, & Richards, 2012). ● No differences were found in both gifted student with and without ADHD: perceptions of interpersonal relationships, self-reliance, social stress, perceived self-concept in specific areas of intelligence, physical appearance, ability to deal with anxiety, and popularity (Foley-Nicpon et al., 2012).
Gifted/ASD	<p>High-ability students with high-functioning autism or Asperger Syndrome scored much higher in verbal and nonverbal skills than in working memory and processing speed skills. AS group had better verbal comprehension than the high-functioning autism group. (Foley-Nicpon et al., 2012).</p>	<ul style="list-style-type: none"> ● Compared to G/ASD children, G/ASD adolescents displayed better ability to adapt to changes in environment and fewer symptoms of behaving oddly or expressing disconnection from their surroundings. However, G/ASD adolescents were reported consistently experiencing atypicality, depression, and hyperactivity. ● G/ASD students have limited insight into their difficulties. They perceive their emotional, behavioral and social environment to be typical of others their age. ● The existing data did not support that G/ASD students experience high levels of anxiety. (Foley Nicpon, Doobay, & Assouline, 2010)

Limited study focuses. Traditionally, the discussions on twice-exceptional students cover a broader range in books than in research articles. Maker (1977) discussed programming for gifted students with blind and visual impairments, deaf and hearing impairments, emotional disturbance/behavioral disorders, learning disabilities, and physical disabilities. Later in 1999, Cline and Schwartz published *Diverse Populations of Gifted Children* and included gifted students with hearing and visual impairments, ADHD, learning disabilities, and physical disabilities. Callard-Szulgit (2008) presented multiple types of students to teachers and parents: gifted students with deafness and hearing loss, visual impairments, emotional disturbance, ADHD, Asperger's Syndrome, autism, dyslexia, learning disabilities, epilepsy, and traumatic brain injury. Montgomery (2015) had an in-depth discussion about gifted children with ADHD, Asperger's Syndrome, dyslexia, and developmental coordination difficulties in the United Kingdom.

Foley Nicpon, Allmon, Sieck, and Stinson (2011) conducted a review of 2E empirical studies published between 1990 and 2009. They indicated that ADHD, ASD, and SLD are "the three most commonly investigated areas" (p. 4). Two reasons for this common focus are given in another article (Foley-Nicpon, Assouline, & Colangelo, 2013, p. 170): (a) SLD and ADHD are the largest categories in schools; and (b) the ASD population is growing. However, according to the statistics in the fall of 2014 (Institute on Disability, 2016), speech or language impairment (17.50%), following SLD (38.96%), is the second largest group in schools. Yet, researchers have not explored high-potential students in the category of speech or language impairment. Furthermore, rarely have people brought up the possibilities of identifying gifted and talented students in populations of emotional disturbance or multiple disabilities. The National Education

Association (2006) said in *The Twice-Exceptional Dilemma*, “Certainly, any child with a disability can also have gifts and talents. For example, a student with mental retardation can be a gifted artist or athlete” (p. 1). As the intersection area demonstrated in Figure 1, there can be many combinations of disability and giftedness (e.g., a gifted artist with intellectual disability). Reis et al. (2014) suggested that a definition of twice exceptionality must acknowledge the coexistence of giftedness and any of the IDEA disability categories except for intellectual disability. Being open to possible, new categories of twice exceptionality also challenges existing definitions of disabilities and giftedness.

In summary, the cognitive and psychosocial characteristics of twice-exceptional learners vary from individual to individual. They may not always perform above grade level. Instead, they may have average or below-average performance depending on the interaction between giftedness and disabilities. Researchers are starting to find patterns by analyzing students’ assessment results. However, to generalize 2E groups is next to impossible. For practitioners and researchers, more empirical studies are needed to help identify gifts and talents within students with visible and invisible disabilities.

An “agreed-on definition” of twice exceptionality. Using a consensus approach, the National Twice-Exceptional Community of Practice created an “agreed-on definition” of *twice-exceptional individuals*, hoping to help educators gain more understanding of twice exceptionality and bring about necessary supports as a result. The definition reads:

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. 2E students, who may perform below, at, or above grade level, require the following:

- Specialized methods of identification that consider the possible interaction of the exceptionalities,
- Enriched/advanced educational opportunities that develop the child's interests, gifts, and talents while also meeting the child's learning needs,
- Simultaneous supports that ensure the child's academic success and social-emotional well-being, such as accommodations, therapeutic interventions, and specialized instruction, and

Working successfully with this unique population requires specialized academic training and ongoing professional development. (Baldwin, Baum et al., 2015, pp. 212–213)

The unknown concepts about twice exceptionality remain bigger than what educators and researchers know. Cognitive or psychosocial characteristics of individuals with disabilities do not always apply to twice-exceptional individuals. Likewise, gifted characteristics cannot fully represent twice-exceptional individuals. Quite a few empirical studies conducted after 2010 help educators validate how twice-exceptional students function mentally and emotionally (Assouline, Foley Nicpon, & Whiteman, 2010; Foley-Nicpon, Assouline et al., 2012; Foley Nicpon, Doobay, & Assouline, 2010; Foley-Nicpon, Rickels, Assouline, & Richards, 2012; Fugate, Zentall, & Gentry, 2013; Lovett & Sparks, 2010). Because it is hard to establish patterns of twice-exceptional students, researchers repeatedly call for a comprehensive analysis/assessment of learner profiles in order to have correct diagnosis and suitable interventions (Foley-Nicpon, Assouline et al., 2012; Reis et al., 2014). Other professionals call for looking beyond stereotypical characteristics of students with disabilities or giftedness (Baldwin, Omdal, & Pereles, 2015; Mayes & Moore, 2016).

Needs of twice-exceptional students. Voices of twice-exceptional students and their parents and teachers suggest what educators need to know and be able to perform in order to help twice-exceptional students succeed. To teach 2E students, educators must acquire fundamental knowledge and skills such as 2E student characteristics, flexible

approaches to structuring learning, and collaboration among school personnel and parents (Rubenstein, Schelling, Wilczynski, & Hooks, 2015). Research from 2E students' experiences and observations from parents and teachers suggest that twice-exceptional students need ownership in their learning, higher-level thinking skills, compensation strategies, and strength-based, talent-focused learning environments (Baum, Schader, & Hébert, 2014; Mann, 2006; Reis, McGuire, Neu, 2000; Rubenstein et al., 2015; Willard-Holt, Weber, Morrison, & Horgan, 2013). Educators need to focus their professional learning on enhancing their knowledge and skills in these areas.

Frameworks to Serve Twice-Exceptional Students in Schools

Several state and local education agencies use similar frameworks to serve twice-exceptional students. In Montgomery County Public Schools, Maryland, 2E students are served under a tiered framework: School teams are required to use the collaborative problem-solving process prior to refer potential 2E students to the Educational Management Team or IEP team. The decision for a referral is based on students' responses to interventions at a less intensive level. The Montgomery County Public Schools also provides 2E students with strength-based instruction, which includes (a) acceleration and enrichment, (b) specialized instruction and/or interventions, (c) appropriately selected accommodations, and (d) comprehensive case management and social emotional support (Office of Curriculum and Instructional Programs & Office of Special Education and Student Services, 2015, pp. 9–10, 17).

In Colorado, school personnel are required to use a body of evidence in gifted education identification which helps professionals to find 2E students who fail to excel

on achievement tests but who demonstrate a distinguished level of performance as measured by other identification tools. Also, school personnel are encouraged to develop and implement comprehensive educational plans for 2E students that have a dual emphasis on students' strengths and challenges. A problem-solving process, which has RtI as an evaluation approach, is used for the life cycle of an instructional plan (CDE, 2012b).

In NAGC's position paper, *Ensuring Gifted Children with Disabilities Receive Appropriate Services*, the association recommends that educators adapt RtI to support identification of potential twice-exceptional students through universal screening. Furthermore, NAGC urges gifted education specialists to get involved in a planning process to make sure that interventions are based on the needs of gifted or 2E students (NAGC, 2013a). Currently, nine states have policies that include gifted and talented students in the RtI or Multi-Tiered System of Supports (MTSS), and RtI is considered to have positive effects on the delivery of gifted education services by the majority of responding state agencies (21 out of 36) (NAGC & CSDPG, 2015). Therefore, understanding and utilizing principles of RtI and MTSS becomes imperative for all educators.

Response to Intervention. Response to Intervention was at first used for identifying students with learning disabilities (Fuchs & Fuchs, 2007). Because professionals are more familiar with concepts that are specific to their discipline, a cross-disciplinary application takes time and reflection to make empirical and practical sense. The Association for the Gifted of the Council for Exceptional Children (CEC-TAG) and the National Association for Gifted Children (NAGC) expanded the implementation of

RtI from special education to gifted education and twice exceptionality (CEC, 2009). In a position statement, CEC-TAG and NAGC indicated new ways of thinking based on critical elements of RtI. First, CEC-TAG and NAGC said universal screening should recognize both students' areas of potential deficiencies and strengths. This is understandable, and this is helpful in raising the awareness of the coexistence of giftedness and disabilities. Second, CEC-TAG and NAGC considered the problem-solving approach as a good fit to gifted education. Professionals in gifted education favor the problem-solving approach as well, especially on the issue of twice exceptionality (CDE, 2009; Pereles, Omdal, & Baldwin, 2009). Crepeau-Hobson and Bianco (2011) later emphasized that when gifted students are served under an RtI framework, educators should be aware of its rationale and keep the strengths-based approach in mind.

Supporting twice-exceptional students within an RtI framework has positives and concerns. Crepeau-Hobson and Bianco (2011) asserted, "The cornerstone of an effective RtI model is the ability to identify students who are struggling early so that intervening strategies can be implemented and measured, and student responsiveness can be assessed through ongoing progress monitoring" (p. 105). Pereles et al. (2009) stated that, when being implemented with fidelity, RtI can benefit twice-exceptional students who are not on an IEP or do not have an adequate Section 504 Plan. However, no empirical studies can explicitly help practitioners understand how to serve all kinds of exceptional learners within an RtI framework. There can be multiple combinations of giftedness and disabilities, and RtI originated as a way to serve students who may not yet meet criteria of the discrepancy model for learning disabilities. Therefore, professionals should keep in

mind that a comprehensive evaluation can provide very useful information that can be used to develop an effective learning plan.

Professionals have other challenges in advancing the services for twice-exceptional students. First, the RtI process needs to be done with fidelity and includes a strength-based approach (Hughes et al., 2009). The treatment fidelity is essential in the standard protocol approach of RtI, whereas interventions in the problem-solving model vary from case to case (Ferri, 2012). That is why the CDE adopted the problem-solving model to serve 2E students because the case-by-case mechanism may increase the level of complexity to assess the effectiveness of 2E educational services. Second, each state has its own RtI model. The use of RtI in special education is generally accepted. Twice-exceptional students can benefit from the implementation of RtI only if the model is inclusive of gifted students. Third, it requires time and knowledgeable school personnel to decide when and how to provide tiered interventions that address a 2E student's strengths and weaknesses. Last, since *Gifted Child Today* published a special issue on RtI and gifted education in 2009, expert wisdom has dominated discussions about RtI in gifted education and twice exceptionality. However, practices in the field must be shared in order for administrators and school personnel to learn from one another.

Multi-tiered system of supports. Twice-exceptional students can benefit from the implementation of MTSS. Hughes et al. (2009) mentioned that, instead of recognizing potential, some teachers first notice 2E students' problem behaviors. However, academic and behavioral issues are sometimes inseparable. The integration of RtI and PBIS can help teachers address behavioral issues while also addressing students' academic needs simultaneously (Kuchle, Edmonds, Danielson, & Peterson, 2015).

Unfortunately, the MTSS has not yet had a statutory or regulatory status. Given MTSS is considered as a schoolwide framework that is very likely to improve learning outcomes for every student and is aligned with key legislation priorities (CDE, 2014a, 2016b), when dealing with gifted students with disabilities, schools must follow requirements of IDEA or Section 504. Specifically, neither RtI nor MTSS can substitute for the development and implementation of an IEP or Section 504 Plan, but those plans can be incorporated in MTSS. In addition to the lack of a statutory/regulatory status, educators should be aware of other aspects of MTSS. First, RtI is often mentioned in discussions about the MTSS framework, and many people use those two terms interchangeably, for example “the RtI/MTSS framework” (Miami Dade County Public Schools & Office of Academics, Accountability & School Improvement, n.d., p. 3). Because MTSS blended key components of RtI and PBIS, which focus on academic performance and behaviors respectively, MTSS should be distinguished from RtI. Second, similar to how RtI functions, each state has its own operational definition of MTSS. Practitioners need clear guidelines and empirical studies on the implementation of MTSS in the twice-exceptional population. Third, it is too early to decide on the efficacy of using MTSS with twice-exceptional students although it seems like a promising approach to address both academic needs and behavioral issues. Adhering to its essential components (e.g., layered supports, evidence-based instruction, and progress monitoring) and documenting implementation can help establish a solid foundation for further study.

Personnel Training in Supporting Twice-exceptional Students

Professional Standards

Professional standards represent expectations. The Interstate Teacher Assessment and Support Consortium (InTASC) Model Core Teaching Standards serve as “a resource for states, districts, professional organizations, teacher education programs, teachers, and others as they develop policies and programs to prepare, license, support, evaluate, and reward today’s teachers” (Council of Chief State School Officers [CCSSO], 2013, p. 5). In Standard 2: Learning Differences, the essential knowledge that every teacher should have includes understanding students with disabilities and giftedness and knowing strategies and resources to address those students’ needs (CCSSO, 2013, p. 17). The exceptional learners referred to by the Council for Exceptional Children consist of IDEA’s definitions of disabilities and a general statement of giftedness and talents since there is no federal definition of giftedness. The CEC uses “individuals with exceptionalities” in its initial and advanced special educator preparation standards (CEC, n.d.). Even so, an introduction to characteristics of gifted learners and teaching strategies for supporting gifted learners may have been marginalized in many pre-service teacher education programs. A national snapshot of coursework related to exceptional children in elementary education bachelor’s degree programs shows that many programs required more credit hours for courses related to characteristics of disabilities (2.17–2.44 credit hours) than courses related to other topics, such as inclusion, classroom management, and collaboration (Allday et al., 2013). It was unclear if the giftedness/talent or 2E concepts had been incorporated into that coursework.

Historically, general education teacher or special education teacher preparation programs have not incorporated enough contents about the education of students with gifts and talents or twice exceptionality. Johnsen (2013a) pointed out that “Gifted students are not considered when federal and state rules and regulations, teacher and curriculum standards, assessments, and programs are being designed” (p. 5). In spite of that, the initial teacher preparation standards in gifted and talented education have been inclusive in addressing diversity— “Beginning gifted education professional understand how language, culture, economic status, family background, and/or area of disability can influence the learning of individuals with gifts and talents” (Standard 1.1, NAGC, 2013b, p. 1). Only a handful of gifted and talented education programs are offered for pre-service teachers. Two examples are the Elementary Inclusive Education Program with the gifted extension at Columbia University and the Dual Certificate Program in Elementary and Gifted and Talented Education at Baylor University. Other than that, formal training in gifted and talented education exists in master’s, Ed.D./Ph.D., or certification/endorsement programs (NAGC, 2014).

Insufficient Personnel Training

It is generally accepted that teacher training is correlated with the effectiveness of identifying and serving twice-exceptional students (Bianco & Leech, 2010). Professionals who work closely with students are often inadequately exposed to issues around underrepresented groups, including gifted students with disabilities. Earlier in 1981, Whitmore pointed out that teacher candidates preparing to teach gifted students or students with disabilities “have shared little information between the fields.... [T]he professionals in both fields know very little about the knowledge and skills representative

of the other area of specialization” (p. 112). Specialized training with limited exposure to diverse learners may impact teachers’ perceptions about students. For example, Bianco and Leech (2010) found that teachers’ training background affected referral recommendations for gifted services: Compared to gifted and general education teachers, special education teachers, who focused more on students’ weaknesses and perceived IQ as an indicator of giftedness, were least likely to refer students to a gifted program. Additionally, Bianco and Leech (2010) noticed that general, gifted, and special education teachers were affected by disability labels when making referral decisions. The researchers confirmed this finding to be consistent with other studies conducted before 2005. Although the effects of preservice and in-service teacher education were not distinguished, the lack of training about twice exceptionality was obvious.

A team approach has dominated approaches to supporting twice-exceptional students and reshaped expectations for professionals outside gifted and special education (Coleman & Gallagher, 2015). These teams include classroom teachers, school counselors, and school psychologists. Assouline and Foley Nicpon (2007) indicated that making curriculum and accommodation recommendations for twice-exceptional students needs to be collaborative and team-driven, and members of the educational team “need to be aware of all educational options available to address students’ diverse areas of exceptionality” (p. 13). However, two surveys showed that educational professionals were unfamiliar with guidelines that were used outside their disciplines but were still related to the education system (Assouline & Foley Nicpon, 2007; Foley-Nicpon et al., 2013). In the survey concluded in 2007, 91.7% of school psychologists ($n = 48$) in Iowa knew specifically about guidelines for special education services, whereas only 6.4%

were knowledgeable about guidelines for gifted education services. This phenomenon remained similar in the 2013 survey completed by participants from 40 states: special education teachers ($n = 25$) and psychologists ($n = 33$) were more familiar with special education guidelines than gifted ($n = 93$) and general education teachers ($n = 56$); gifted education teachers were more familiar with gifted education guidelines than psychologists, special and general education teachers. To support twice-exceptional students, professionals need more cross-disciplinary training on how to work with gifted students and twice-exceptional students.

Specialized service professionals do need deliberate training on how to work with gifted students and twice-exceptional students. School psychologists who have expertise in measurement and assessment can help evaluate twice-exceptional students' learner profiles, which include "norm-based, psychometrically sound, comprehensive individual intelligence and achievement tests and measures in all areas of suspected strength and disability" (NAGC, 2013a, p. 2). School counselors are important as well. All students, including 2E learners, can benefit from school counselors who "help all students in the areas of academic achievement, personal/social development and career development" (American School Counselor Association, n.d.a, para. 1). Data strongly indicate the need for more twice-exceptional training: In a national survey, nearly 60% of school psychologists ($n = 300$) revealed that they had no to little familiarity regarding twice exceptionality (Robertson, Pfeiffer, & Taylor, 2011). Leggett, Shea, and Leggett (2011) reported that only 3 out of 37 graduate-level counseling students had the knowledge of twice exceptionality, and one of the three students indicated that he/she acquired the knowledge from his/her supervisor. In addition, these participants did not consider

themselves advocates for gifted students with disabilities, despite the expectation that school counselors should “promote equity and access to rigorous educational experiences for all students” through “leadership, advocacy and collaboration” (American School Counselor Association, n.d.b, p. 1).

Voices of twice-exceptional students and their parents and teachers suggest what educators need to know and be able to perform in order to help 2E students succeed. To teach 2E students, educators must acquire fundamental knowledge and skills such as students’ characteristics, approaches to structural flexibility, and collaboration among school personnel and with parents (Rubenstein et al., 2015). Research from 2E students’ experiences and observations from parents and teachers suggest that twice-exceptional students need ownership of their learning, higher-level thinking skills, compensation strategies, and strength-based, talent-focused learning environments (Table 7). Educators can focus their professional learning on enhancing their knowledge and skills in those areas.

Table 7

Possible Professional Learning Topics Regarding Teaching Strategies

	Teaching Strategies	Sources
Learners' ownership	<ul style="list-style-type: none"> • Establish and explain assignment criteria • Help allocate time for completing assignments 	(Willard-Holt, Weber, Morrison, & Horgan, 2013)
Higher-level thinking skills	<ul style="list-style-type: none"> • Present complex ideas and ways of thinking about them. For example, the ways that ideas are connected to each other • Utilize strategies to enhance giftedness. For example, critical and creative thinking 	(Willard-Holt et al., 2013)
Compensation strategies	<ul style="list-style-type: none"> • Deliberately teach study/learning and performance strategies • Teach the use of compensation supports 	(Reis, McGuire, Neu, 2000; Willard-Holt et al., 2013)
Strength-based, talent-focused philosophy	<ul style="list-style-type: none"> • Create a psychologically safe environment • Foster positive relationships • Give students time for growth • Understand students' asynchronous development and be patient with it • Encourage students to pursue topics of interests at their own pace 	(Baum, Schader, & Hébert, 2014; Mann, 2006; Rubenstein et al., 2015; Willard-Holt et al., 2013)

Adequate training includes not only knowledge and skills, but also maintaining high expectations for students. Most recently, Missett, Azano, Callahan, and Landrum (2016), through a case study, found that the participating teacher's low expectations for her gifted student with an emotional and behavioral disability were likely to drive the choice of deficit-based interventions over strength-based ones. Acknowledging the

asynchronous development in twice-exceptional students is important as well. In relation to assessing students' learning progress, teachers should measure students' growth over time instead of using grade-level expectations (Baum et al., 2014; Mann, 2006; Rubenstein et al., 2015). Teacher attitudes are as equally important as knowledge and skills.

In-demand Professional Development

Because of inadequate pre-service training in gifted education, professional development becomes crucial (Johnsen, 2013a). The National 2E CoP indicated that working with twice-exceptional students requires *specialized academic training* as well as *ongoing professional development* (Baldwin et al., 2015). Under *Every Student Succeeds Act*, ongoing professional development means activities that are “sustained (not stand-alone, 1-day, or short-term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused” (§8002 (42)) and can help teachers or related service professionals implement the knowledge and skills in classrooms. Some states were trying to improve professionals' capacity to better serve twice-exceptional students. Among 42 responding state education agencies, three states were either educating or supporting their professionals to learn about twice exceptionality at the state level (NAGC & CSDPG, 2015). In the category of *positive developments and/or innovations in gifted education*, Colorado listed its Twice-Exceptional Professional Development Project. Texas developed the *Twice-Exceptional Students and G/T Services* website, which is under the state's Equity in Gifted/Talented Education framework. Rhode Island reported having designated personnel at the state education agency to provide technical assistance and believed this was having a positive impact on the delivery of gifted education services in

the state during the timeframe when the *State of the States* survey was completed. Still, states in the U.S. have a long way to go before achieving the goal of helping every student succeed. Nonetheless, studies or reports on the development, implementation, or effectiveness of twice-exceptional professional development have not yet been found. Administrators who are dedicated to helping professionals serve 2E learners are either seeking models to learn from or finding ways to establish best practices.

The National Twice-Exceptional Community of Practice indicated that working with twice-exceptional students requires *specialized academic training* as well as *ongoing professional development* (Baldwin, Baum et al., 2015). A team approach has dominated the ways of supporting twice-exceptional students and reshaped expectations for professionals outside gifted and special education (Coleman & Gallagher, 2015). In 2015, three states in the U.S. were either educating or supporting their professionals to learn about twice exceptionality at the state level (NAGC & CSDPG, 2015): Colorado listed its twice-exceptional professional development project; Texas developed *Twice-Exceptional Students and G/T Services* website; and Rhode Island designated personnel at the state education agency to provide technical assistance. Of the three initiatives, a team approach was embedded in the personnel training in Colorado.

Identifying and serving twice-exceptional students requires the involvement of professionals in various fields: school counselors, school psychologists, related service providers, and teachers in general, gifted, and special education. There is a need for recruiting a more diverse sample of professionals to support twice-exceptional learners. These professionals serve different roles at different stages and at different levels. For example, school psychologists conduct psychometric assessments for identification;

teachers provide evidence of student performance in a referral process and, if needed, implement an intervention plan.

In the suggested definition of twice exceptional, the National 2E CoP indicated that it takes *specialized academic training* and *ongoing professional development* to administer *specialized methods of identification* and/or provide *enriched, advanced educational opportunities* and *simultaneous supports*. A fundamental aspect of twice-exceptional training should help educators know about students' characteristics and needs. Twice-exceptional training that includes knowledge, skills, and dispositions should be available through personnel preparation programs and professional development. The profession of supporting twice-exceptional students should be established and valued.

Professional Development

Under *Every Student Succeeds Act*, effective professional development means activities that are “sustained (not stand-alone, 1-day, or short term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused” (§8002 (42)) and can help teachers or related service professionals implement the knowledge and skills in classrooms. Researchers have identified two major features of effective professional development over the past 15 years: structural and core features (Desimone, 2009; Garet et al., 1999) (see Table 8). Structural features (a–c) are characteristics of the design of activities (reform type, duration, and collective participation), while core features (d–f) refers to the core of professional learning experiences (active learning, coherence, and content focus).

- a) Reform type: Different from traditional types of workshops, conferences, and college credits, reform types of professional development such as teacher networks have a substantial impact on teacher learning that focuses on higher order instructional practices and assessments. Desimone (2009) did not include types of activities as a critical feature of quality professional development. She argued that a research study focusing on the structure of activities is less useful than that on other features of professional development that are related to outcomes of interest.
- b) Duration: Professional development that is sustained over time supports educators' active learning.
- c) Collective participation: Educators learn better when they are from the same school or grade level, especially for learning technological skills.
- d) Active learning: To promote changes in practices, educators benefit from meeting regularly to discuss their work.
- e) Coherence: Activities are aligned with school improvement priorities and goals, standards for professional development, and/or guidelines for license renewal.
- f) Content focus: The majority of professional development studies had focuses on student outcomes in reading, mathematics, or science (Darling-Hammond et al., 2009; Garet et al., 1999; Garet et al., 2001; Jaquith et al., 2010; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007).

Table 8

Features of High-quality Professional Development

Structural Features	Approaches
(a) The form or organization of an activity	Use non-traditional forms of activities, such as study groups, teacher collaboratives, or internship activities
(b) The duration of the activity	<ul style="list-style-type: none"> • Increase contact hours (20 hours or more) • Make activities extend over time (one semester in general)
(c) The degree to which an activity emphasizes the collective participation of teachers from the same school, grade, or department	Set up potential interaction and discourse
(d) The extent to which an activity offers opportunities for active learning	Provide opportunities for teachers to become actively engaged in meaningful discussion, planning, and practice
(e) The degree to which an activity promotes coherence in teachers' professional development	<ul style="list-style-type: none"> • Provide activities that are built on teachers' prior knowledge/skills and followed up with advanced work • Provide activities that are aligned with school, district, and state reforms and policies • Provide opportunities for teachers to develop ongoing communication with other teachers
(f) The degree to which an activity has a content focus	<ul style="list-style-type: none"> • Deepen teachers' content knowledge in a given subject • Deepen teachers' knowledge in how students learn a given content

Note. Adapted from “Improving Impact Studies of Teachers’ Professional Development: Toward Better Conceptualizations and Measures,” by L. M. Desimone, 2009, *Educational Researcher*, 38(3), 181–199. Adapted from “Designing Effective Professional Development: Lessons from the Eisenhower Program,” by M. Garet, B. Birman, A. Porter, L. Desimone, R. Herman with K. S. Yoon, 1999, Washington, DC: U.S. Department of Education.

Professional development in education should always be planned and implemented with evaluation plans. The evaluation of professional development should include not only include attendees' perceptions, but also applications of new learning in classrooms and systemic support for those applications that will contribute positive long-term outcomes for students. According to Guskey (2000), the impact of professional development can be examined at five levels and "success at one level is necessary for success at the levels that follow" (p. 78; Table 9). The first level is participants' reactions to the structure and delivery of training. The focus of level one is participants' perceptions about their experiences. Training providers need this information to improve the design and delivery of professional development. The second level is participants' learning. The focus of level two is participants' gains of knowledge and skills. A satisfactory completion of training paves the way for applications in classrooms. The third level is organizational support and change. In education settings, organizational support comes from a school and its school district (e.g., time for collaboration, colleagues' awareness of an issue). Similar to level two, a supportive organization fosters applications in classrooms. The fourth level is participants' use of new knowledge and skills (i.e., applications in classrooms). Training participants apply what they have learned to instructional changes. Level five, student learning outcomes, has been the only interest of policymakers and administrators. However, based on Guskey's framework (2000, 2003), the improvement of student learning outcomes will not happen without instructional changes, organization support, and carefully designed and delivered training.

Table 9

Levels of Evaluation of Professional Development

Levels	Focuses	Data Collection Strategies
1. Participants' reactions to the structure and delivery of training	Initial satisfaction with the experience	<ul style="list-style-type: none"> • End-of-session questionnaires • Focus groups • Interviews • Personal learning logs
2. Participants' learning	New knowledge and skills of participants	<ul style="list-style-type: none"> • Paper-and-pencil instruments • Simulations and demonstrations • Oral and/or written reflections • Participant portfolios • Case study analyses
3. Organization support and change	An organization's advocacy, support, accommodation, facilitation, and recognition	<ul style="list-style-type: none"> • District/school records • Minutes from follow-up meetings • Questionnaires • Focus groups • Interviews • Participant portfolios
4. Participants' use of new knowledge and skills	The quality of implementation	<ul style="list-style-type: none"> • Questionnaires • Interviews • Oral and/or written reflections • Participant portfolios • Direct observations • Video- or audiotapes
5. Student learning outcomes	Student growth in cognitive, affective, or psychomotor domains	<ul style="list-style-type: none"> • Student records • School records • Questionnaires • Interviews • Participant portfolios

Note. Adapted from *Evaluating Professional Development* (pp. 79–81), by T. R. Guskey, 2000, Thousand Oaks, CA: Corwin Press.

The above is a framework to evaluate professional development; studies on the effectiveness of professional development can also inform what to look for in an evaluation. A seminal report about effective professional development was published in

1999—*Designing Effective Professional Development: Lessons from the Eisenhower Programs* (Garet et al., 1999). Journal articles on the same topic were all based on this report (e.g., Desimone, 2011; Desimone, Porter, Garet, Yoon, & Birman, 2002; Garet et al., 2001). A large-scale data collection included (a) the national profile (telephone interviews, a mail survey), (b) the case studies in five states (each state has two school districts), and (c) the longitudinal study of teacher change (interviews and classroom observations). Structural and core features of high-quality professional development were used to examine changes in participants' learning of new knowledge and skills and in instructional practices. Regarding the effectiveness of Eisenhower-assisted professional development activities, findings support that learning activities that featured content knowledge, active learning, and coherence led to self-reported teacher outcomes of enhanced content knowledge and knowledge of instructional methods. In terms of an investigation into the effects of professional development on improvements in teacher or student outcomes, Garet and colleagues (1999) stated that little systematic research has been found to help move their study beyond the scope to “provide some preliminary guidance about the characteristics of high-quality professional development” (p. 326). The methodology of Garet et al.'s (1999) report is worth a replication. However, a study that adopts a similar approach has not yet been found after 2000.

In 2011, Garet et al. reported an impact study (Garet et al., 2011) on mathematics professional development embedded with an experimental design with random assignment of schools to treatment and control conditions. Given an experimental design is preferred in terms of providing evidence, the measures (i.e., teacher knowledge test and student achievement test) did not help explain why, at the end of the second year of

implementation, the training program did not have a statistically significant impact on student achievement. The approach to examine the impact of professional development in Garet and colleagues' study does not inform program improvement. The same limitation on making practical implications can be found in another study on early reading professional development (Garet et al., 2008).

Summary

Conceptions of giftedness have evolved over time: from general intelligence to multiple talents and gifts, from innate abilities to potential needed to be developed. There is no federal mandate for gifted education; on the contrary, the law mandates special education and related services for eligible students. The definitions of how a disability adversely affects a student's educational performance differ from state to state. In addition to the IDEA, students with disabilities might benefit from the protection of Section 504 or ADA to meet their learning needs.

The inclusion of the twice exceptionality concept in legislations and regulations reflects the increasing awareness that 2E learners are a unique population with special needs. Although the provision of educational services for this population heavily depends on whether or not gifted education is mandated and funded by a state, educators are reminded of 2E students' rights promised by the IDEA, Section 504, and ADA. To support the learning of 2E students, educators are finding a common ground in Response to Intervention (RtI) and Multi-Tiered System of Support (MTSS). Personnel training plays a critical role in helping educators understand the characteristics of 2E learners and implement interventions based on learners' needs. Necessary studies and evaluations can

sustain ongoing professional development initiatives and collaboration among professionals in order to improve student learning outcomes over the long term.

CHAPTER III

METHODOLOGY

Overview of Methodology

A case study enables a researcher to investigate “a contemporary phenomenon (the “case”) in depth and within its real-world context,” especially when “phenomenon and context are not always sharply distinguishable in real-world situations” (Yin, 2014, pp. 16–17). The twice-exceptional professional development activities were designed to facilitate educators’ learning and application in their home districts; therefore, educators’ perceptions and experiences are different from one school district to another. The case study methodology can help better understand educators’ perspectives in the participating school district of this study.

Multiple sources of evidence, including documentation, archival records, and interviews, were used to understand (a) educators’ perceptions of the training and implementation strategies as a result of the training, (b) educators’ perceptions of the training’s impact on 2E students’ learning, and (c) school- and district-level changes made as a result of the 2E Project. Documentation included meeting records and administrative documents about the 2E Project. Archival records included the information about the participating school district and its four piloting schools, the student count, and related services for twice-exceptional students. Interviews with former 2E Project participants provided this study with educators’ perspectives about their

training experiences, perceptions of the training's impact on 2E students' learning, and observations of organizational changes.

Purpose and Research Questions

The purpose of the study was to examine the implementation of a two-year professional development training period (2014–2016) facilitated by the Colorado Department of Education. In this study, three dimensions of a program were examined: (a) educator reactions to and feedback on the training and the educational services developed and/or implemented as a result of the training; (b) perceptions of the training's impact on 2E students' learning, including progression through the education system, changes in social and behavioral competencies, and/or functional outcomes; and (c) school- or district-level organizational changes in relation to the 2E Project.

The following questions guided this study:

- Q1 What were participants' experiences serving 2E students before, during, and after the 2E Project Training?
- Q2 How have participants developed and implemented educational services for 2E students?
- Q3 What are participants' perceptions of the 2E Project's impact on 2E students' learning?
- Q4 What were school- or district-level changes that resulted from the 2E Project?

Theoretical Framework

This study was based on the assumption that there are “interactive, nonrecursive relationships between the *critical features* of professional development, teacher knowledge and beliefs, classroom practice, and student outcomes” in which context functions as a mediator and moderator (Desimone, 2009, pp. 184–185). The critical

features that Desimone (2009) referred to are (a) content focus, (b) active learning, (c) coherence, (d) duration, and (e) collective participation. To better understand the interactive, nonrecursive relationships, I relied on social constructivism to guide the research design. Individuals who adopt social constructivism as an interpretive framework “seek understanding of the world in which they live and work” (Creswell, 2013, p. 24). The goal of a study, therefore, “is to rely as much as possible on the participants’ views of the situation” (Creswell, 2013, pp. 24–25).

Constructivism is not only the interpretive framework for this case study, but also a force that shapes professional development and its evaluation activities (Kragler, Martin, & Sylvester, 2014; Sparks & Hirsh, 1997). From the constructivist perspective, adult learning is “internal and controlled by the learner through inquiry” (Kragler, Martin, & Sylvester, 2014, p. 492). Teachers are no longer considered as individuals who received knowledge from experts in training sessions (Sparks & Hirsh, 1997). Adult learning theorists believe that experience, reflection, and individual development are critical in facilitating sustainable changes in professional practices, and those changes must be viewed through the lens of learners’ context (Rohling & Spelman, 2014). In this case study, social constructivism was adopted to understand the 2E Project Training in the Hope District by relying heavily on the participants’ views of training experiences, administrative supports, and perceived impact of training on 2E students’ learning.

Researcher’s Stance

Albert Einstein said, “I have no special talents. I am only passionately curious.” I recognized that I have no special talents either but passionately want to help others succeed. Because I was a teacher and administrator, I understand that professional

development and administrative supports are indispensable to an educator's personal and professional growth. Therefore, I am committed to developing the talents of school personnel.

I concur with the statement held by the National Twice-Exceptional Community of Practice— “working successfully with the 2E population requires specialized academic training and ongoing professional development” (Baldwin et al., 2015, p. 213). The federal government, professional organizations, state and local educational agencies, and higher education institutions should “commit the necessary resources to professional development programs that are grounded in adult learning principles and reflect professional standards for continuing education” (CEC, n.d., para. 2).

My other motive to conduct this study came from my appreciation for the Colorado Department of Education and dedicated educators in Colorado. I received advanced training with the CDE, and I was deeply inspired by passionate training facilitators and fellow trainees. I always seek opportunities to give back to society. When I started planning this study, I continued this message in conversations with potential partner districts: I want this dissertation to benefit not only myself, but also the State of Colorado and its school districts.

Having recognized my intention to help Colorado educators and their work on twice-exceptional students, I was mindful of possible biases in every aspect of my research study. I abided by the *Standards for Professional Practice* by the Council for Exceptional Children (CEC, 2015) so that I could use this study to benefit interested readers at large. This study is not praise for the work of Colorado educators. Instead, it is a reference for administrators, evaluators, and researchers who are interested in topics

covered in this study (i.e., twice exceptionality, professional development, and program evaluation) to learn from the application of case study evaluation methodology. I was committed to upholding the following principles:

- 7.1 Do not knowingly use research in ways that mislead others.
- 7.2 Protect the rights and welfare of participants in research.
- 7.3 Interpret and publish research results with accuracy.
- 7.4 Monitor unintended consequences of research projects involving individuals with exceptionalities, and discontinue activities that may cause harm in excess of approved levels.
- 7.5 Advocate for sufficient resources to support long-term research agendas to improve the practice of special education and the learning outcomes of individuals with exceptionalities. (CEC, 2015, p. 11)

Research Design

The purpose of the study was to understand the twice-exceptional professional development co-developed by the state and a local education agency. Case study research was applied to this study because its main purpose was to “provide stakeholders and their audiences with an authoritative, in-depth, well-documented explication of the program” (Stufflebeam, 2001, p. 34). The case study helped produce (a) a thick description, (b) grounded data, which emerged from the context (i.e., the participating school district), (c) credible accounts to stakeholders in a setting, (d) critical information in a focused, integrated format, and (e) a vehicle for naturalistic generalizations (Guba & Lincoln, 1981, pp. 375–377).

A case study evaluation has several features (Stufflebeam, 2001, pp. 34–36). First, the method considers contextual influences, examining its internal workings and its intended and unintended outcomes. Second, the method requires multiple sources of information to triangulate findings. A researcher will examine a program holistically and in depth. Third, the method intends to elucidate a program rather than to judge its worth.

Fourth, the method can be used retrospectively, especially when a researcher has no control of treatments and participants. A researcher will examine a program as it naturally developed over time.

The nature of this study was to improve rather than to prove (Stufflebeam et al., 1971). Instead of emphasizing *research-based practices*, the ESSA requires programs or activities to be *evidence-based*, which means to demonstrate “a record of success ... reliable, trustworthy, and valid evidence to suggest the program is effective” (Association for Supervision and Curriculum Development, 2016). A case study which can “capture the complexity of a case” and “attend fully to contextual conditions” (Yin, 2014, p. 220) will help collect critical information for professional development evaluations for the participating school district.

Participants

The case for this study was the 2E Project Training in the Hope District (pseudonym) in Colorado. The Hope District is one of the five districts that were recommended by the State Administrator A (one of the research participants) for this research study. The Hope District is a site-based district. The district had four piloting schools participating in the 2E Project. The 2E Project Training was a two-year collaboration between the Colorado Department of Education and administrative units. The CDE ran its very first 2E Project during the 2014–2016 school years. School personnel from the Hope District were called a cohort. The first-year training comprised two levels: the CDE was responsible for delivering a seven-week online course and two-day workshop. In the second year, the 2E cohort created its own professional

development activities based on the needs of the Hope District, and consultants at the CDE provided on-site assistance.

Using purposive sampling, I recruited two groups of participants at four piloting schools in the Hope District: 2E cohort and 2E Project partial completers. The first group met two criteria: (a) They were involved in the 2E Project of 2014–2016 and (b) they had experience in developing and/or providing educational services for twice-exceptional students during the 2014–2016 school years in partial fulfillment of the commitment for the 2E Project. Ten educators reportedly completed Year 1 of the 2E Project. I recruited all ten educators by email in which screening criteria were explained (see Appendix A for email recruitment script). In order to increase the participation rate, I sent out email reminders one week after the first email and provided an option for potential participants to provide typed responses to the interview questions through Qualtrics, in lieu of face-to-face or electronic (e.g., phone, Skype) interviews. Five 2E cohort members agreed to participate in face-to-face interviews with me. I provided them with resources on selected 2E topics as a thank you for their participation.

The second group consisted of educators who had partial experience with the 2E Project (i.e., any one or two of these: Level 1, Level 2, or Year 2). Thirteen of these educators were contacted by email (see Appendix B for email recruitment script). This group was provided with three options to participate in the interviews. They could opt to be interviewed face-to-face or electronically (e.g., phone, Skype), or they could provide written responses to the interview questions via Qualtrics. I sent out an email reminder one week after the first email. Two people accepted face-to-face interviews with me. One was originally identified by an administrator as a potential Group 1 participant but later

reported having not completed Level 2 training. The other participant first responded to the online survey and later accepted an interview. I provided them with resources on selected 2E topics as a thank you for their participation. Three other educators responded to the online survey and were interested in an interview; however, interviews did not take place due to the end of the permitted data collection period.

The third group consisted of two administrators at the Hope District. They were involved with the 2E Project since the beginning. They were interviewed face-to-face (See Appendix C for email recruitment script). The fourth group consisted of two administrators at the CDE. They coordinated the 2E Project. State Administrator A (one of the participants) began running the 2E Project. She was interviewed face-to-face via Zoom. State Administrator B participated in a face-to-face interview. Participants' background information is provided in Table 10.

Table 10

Participants' Background Information

Participants	Main Responsibilities	Employment Status	Grade Level	School Type	Years of Experience	Years of Working at the School/District
Group One: Finished Levels 1 and 2; Participated in Year 2						
School 1 Teacher	General education teacher	Full-time	Elementary (K–5)	Public: School #1	10+	2–5 years
School 2 Teacher A	2016–2017: General education teacher Before: Gifted education specialist/teacher	Full-time	Middle school/junior high (6–8)	Public: previously in School #2	10+	Switch to a new school in 2016–2017
School 2 Teacher B	General education teacher	Full-time	Elementary	Public: School #2	10+	10+
School 3 Learning Specialist	Special education specialist/teacher	Full-time	Middle school/junior high (6–8)	Public: School #3	10+	10+
Hope Learning Specialist	Special education specialist/teacher	Full-time	Middle school/junior high (6–8), high school (9–12)	K–12 schools and districts	10+	3 (at the district level office)

Table 10 (continued)

Participants	Main Responsibilities	Employment Status	Grade Level	School Type	Years of Experience	Years of Working at the School/District
Group Two: Finished Level 1 (School 4 Learning Specialist also participated in Year 2)						
School 2 School Psychologist	School psychologist	Part-time (50–90% of full-time hours)	Elementary (K–5), middle school/junior high (6–8)	Public: School #2	6–10	2–5
School 4 Learning Specialist	Special education specialist/teacher	Full-time	High school (9–12)	Public: School #4	10+	10+
Group Three: Hope District Administrators						
Hope Administrator A	Director	Full-time	PreK–12	K–12 schools and districts	10+	10+ (at the district level office)
Hope Administrator B	Gifted education specialist/teacher	Full-time	PreK–12	K–12 schools and districts	10+	2–5 (at the district level office)
Group Four: CDE Administrators						
State Administrator A	Professional development consultant	Part-time (less than 50% of full-time hours)	K–12 inservice educators	K–12 schools and districts	10+	10+ (at CDE)
State Administrator B	2E coordinator, gifted education specialist	Full-time	PreK–12	K–12 schools and districts	10+	1 (at CDE)

I had the Hope District's permission to collect data in the 2016–2017 school year. An Institutional Review Board (IRB) application was approved on October 24, 2016 (see Appendix D; original project title: A Case Study Evaluation to Understand the Impact of Twice-Exceptional Professional Development). Approved research procedures were comprised of collecting documentation and archival records and conducting interviews. Amendments and modifications made were approved on November 18, 2016, January 20, 2017, and March 2, 2017.

Setting

The Hope District is located in a metropolitan area in Colorado with approximately 37,000 students enrolled in the 2015–2016 school year. The majority of the student population is White (slightly over 50%), followed by Hispanic (35%). The identified gifted and talented population is 9%. About 35% of students are qualified for free and reduced lunch. The district also has around 2,000 teachers; 99.8% of them were rated as highly qualified. The percentage was higher than the state average in 2012, 2013, and 2014 (CDE, 2015). Within the identified gifted and talented population, the 2E population grew from 2.71% to 5.3% in the past two years (CDE, 2014b, 2016c); the state's average is 3.97% (CDE, 2016c). Except for the Hope Learning Specialist, the 2E cohort members and partial completers came from four schools, which were the Hope District' piloting schools for the 2E Project (see Table 11).

Table 11

Schools' Demographics

Demographic Information	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	1000–1050	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 & Talented (%)	8	46	10	N/A
Special Education (%)	9	1	10	N/A

Note. The data are those of 2014–2015 school year (CDE, 2015). The 2014–2015 gifted and talented enrollment at the state level is 7.7% (CDE, 2016d).

Data Collection

This case study evaluation had multiple sources of data to answer research questions in relation to the three study focuses: (a) educators' perceptions of the training and implementation strategies as a result of the training, (b) educators' perceptions of the training's impact on 2E students' learning, and (c) school- and district-level changes made as a result of the 2E Project. (see Appendix E: Chain of Evidence).

Documentation. Documents such as meeting records of the 2E cohort and products of the 2E Project were requested from the Hope District. Course evaluation

outcomes were requested from the 2E coordinator at the Colorado Department of Education. Documentation was used for data triangulation to understand the 2E participants' perspectives about their training experiences (RQs 1 and 2), perceptions of the training's impact on 2E students' learning (RQ 3), and organizational changes made to support 2E initiatives (RQ 4).

Archival records. The study used archival records of information about the Hope District and its four piloting schools, student count, and related services for twice-exceptional students. This information was retrieved from the Hope District and from the data and accountability portal of the CDE (e.g., Data Center, District and School Dashboard, Data Lab, and Colorado Education Statistics). Archival records, like documentation records, helped produce a logic model (Appendix F).

Interviews. Individual semi-structured interviews and follow-up questions were used to gather the 2E participants' perspectives about their training experiences (RQs 1 and 2), perceptions of the training's impact on 2E students' learning (RQ 3), and organizational changes made to support 2E initiatives (RQ 4). Each interview lasted 40–50 minutes with the 2E cohort and administrators and 20–30 minutes with the 2E Project partial completers, respectively. All interviews were audio-recorded and transcribed. Initial analysis included reviewing transcripts and listening to the audio files concurrently to ensure accuracy. The interview protocols are presented in Appendix G (for 2E Project completers) and Appendix H (for 2E Project partial completers).

Interviews with the Hope District and CDE administrators were intended for data triangulation with regard to administrative supports. Follow-up questions were used to understand the operation of the 2E Project (see Appendices I and J).

Data Analysis

According to Creswell (2013), the data analysis in a qualitative study generally includes (1) organizing the data, (2) reading and memoing, (3) reducing the data into themes, and (4) interpreting the data. For a multiple-case study, the “case-quintain dialectic” (Stake, 2006, p. 46) was exercised throughout the analysis process. The dialectic, based on Stake’s description, means that the issues of the individual cases are to “be heard a while, then put aside a while, then brought out again, and back and forth” (p. 46). The dialectic enabled me to pay more attention to individual cases rather than merging cases quickly into the overarching research questions. Strategies for the data analysis are explained below (see Table 12).

Organizing the data. Two separate organizational approaches were applied to the data collected in this study: evidentiary sources (documents, archival records, and interview transcripts) and field notes. An electronic folder was created to hold evidentiary sources. A binder was used to store handwritten field notes and hardcopies of related documents and materials. Audiorecordings were transcribed by a third party and then verified by the researcher.

Reading and memoing. As part of the field notes, which began during the data collection and continued into the analysis phase, I wrote memos when reading interview transcripts and related documents. In this initial phase of exploring the case study database, I looked over the entire database and set aside research questions, followed by reflection on the big picture presented in the data.

Reducing the data into themes. At this stage, detailed descriptions and themes were developed to describe, classify, and interpret the data (Creswell, 2014). First, a third

party transcribed audiorecordings. Second, I verified the transcriptions by listening to audiorecordings. Third, all transcriptions' data were uploaded into NVivo 10 for coding. Fourth, I read transcriptions and did the following: (a) removed identifiable information; (b) assigned 5 completers into Group 1, 2 partial completers into Group 2, Hope administrators into Group 3, and CDE administrators into Group 4; and (c) highlighted interview questions, including follow-up questions in NVivo.

Phase 1. I applied open coding by sentence or paragraph because this approach was especially useful when I had categories already defined and wanted to code around them (Strauss & Corbin, 1990, p. 73). Two theoretical propositions guided the development of initial categories. The first proposition was Guskey's (2000) evaluation framework of professional development, which contains three focuses: participants (i.e., educators), students, and the organization (i.e., the Hope District and schools). The second proposition included the critical features of professional development: (a) content focus, (b) active learning, (c) coherence, (d) duration, and (e) collective participation (Desimone, 2009). A short list of categories was developed (Table 12).

Table 12

Research Questions and Initial Categories

Research Questions Addressed	Initial Categories
The 2E participants' perspectives about their training experiences (RQs 1 and 2)	Educators Teacher outcomes Content focus (replaced by "overarching instructional and collaborative practices") Active learning Coherence Duration Collective participation A reform type
Perceptions of the training's impact on 2E students' learning (RQ 3)	Students Student outcomes
Organizational changes to support 2E initiatives (RQ 4)	Organization

Here I entered the first stage of the constant comparative method, comparing incidents applicable to each category (Glaser & Strauss, 1967, p. 105). When reading a transcript, I categorized responses and expanded the categories at the same time when responses did not fit in existing categories or when those existing categories needed to be specific. For example, an administrator said, "I'm proud of the work that they've done... I'm even surprised that it's continued this long with the same people..." Instead of putting the response into the category of Educators, I created *tenacity* to capture the characteristics of those educators. Another example is a new category, 2E Project. Participants from all groups mentioned some features of the 2E Project which did not fit into existing categories; therefore, a new category was created.

There were 42 expanded categories. As Creswell (2014) suggested, I did not develop more than 25–30 final categories of information. Therefore, I reduced the number of categories by examining the connections between categories and research questions. I then revised the descriptors of categories to make them more specific. Forty-two categories were merged into 15 categories.

Phase 2. The second stage of the constant comparative method took place in Phase 2, integrating categories and their properties (Glaser & Strauss, 1967, p. 108). Although by nature I employed the second stage, I still found a need to repeat stage one. Glaser and Strauss (1967) were clear about the constant comparative method—“earlier stages do remain in operation simultaneously throughout the analysis and each provides continuous development to its successive stage until the analysis is terminated” (p. 105).

Phase 3. I developed themes. First, I set aside the data after reducing the number of categories from 42 to 15. I read the research questions before collapsing categories into themes. Second, I examined the connections between research questions and categories and made notes: To answer RQ 1, I looked for categories that related to *educator outcomes*. Likewise, I looked for *framework* and *instructions* to answer RQ2, *student learning outcomes* to answer RQ 3, and *organizational changes to support 2E initiatives* to answer RQ 4. I also reviewed the categories that had not yet been connected with research questions. After examining the relationships among research questions, categories, and possible themes, I came up with five initial themes: (a) The past, present, and future of the 2E Project: *Before 2016–2017* and *2016–2017 and beyond*, (b) effective professional development features, (c) educator outcomes: knowledge and skills and dispositions, (d) student outcomes, and (e) leadership. I went back to read each source

(i.e., selected portions from transcripts) and verified its relationship with a given theme. I reviewed sources from all of the four participant groups and observed the differences among groups. However, cross-group comparison was not my focus at this point. Any sources that solely came from administrators in Groups 3 and 4 were skimmed through but analyzed later. This was done in NVivo one category at a time. I worked on NVivo and Table 13 and copied representative quotes from NVivo to Table 13. I further merged categories and deleted repetitive quotes. For example, participants' responses to Level 3 training were merged into *2E Project-future direction*, which were used to support the theme, The 2E Project: 2016–2017 and after.

Themes are “broad units of information that consist of several codes aggregated to form a common idea” (Creswell, 2014, p. 186). My research advisor and I examined the connections between themes and research questions individually and jointly. I read transcripts again and revised the descriptors of the themes several times in order to capture the participants' responses while answering the research questions. I formulated major themes with a smaller set of higher-level concepts, such as knowledge and skills, attitudes, and challenges; the major themes were generalized so that they pertained to all of the Group 1 and 2 participants. I also reduced the original list of categories and saturation (Morse, 2004) occurred when no new insights emerged (see Table 14).

Table 13

Example: Developing a Theme by Connecting the Research Question, Category, and Quotes

Research Questions	Categories	Sources	Representative Quotes (Incidents)	Integrating Categories & Properties	Major Themes
RQ 1: What were participants' experiences serving 2E students before, during, and after the 2E Project Training?	Outcomes-teachers	Hope Learning Specialist	[B]efore someone if they approached me about a student that was confusing to them, I wouldn't have any idea. During... I was able to give a little more direction around a student who might be twice exceptional or I might think is twice exceptional to a special educator.... [P]ost-training, like all I do is offer guidance and who they would connect with.	Knowing what to look for in a struggling student Becoming resource hubs: referring, delivering training	A. Increased knowledge and skills - 2E student characteristics - Strength-based interventions - Resource hubs

Table 14

Phase 3 of Data Analysis

Research Questions	Initial Themes I →	Initial Themes II →	Major Themes
RQ 1: What were participants' experiences serving 2E students before, during, and after the 2E Project training?	<p>A. The 2E Project:</p> <p>(a) An overview; Before 2016–2017</p> <p>(b) 2016–2017 and after</p> <p>(c) Recurring challenges</p> <ul style="list-style-type: none"> • Competing interests • Limited time for receiving and delivering training • Lack of districtwide RtI/MTSS <p>B. Effective PD features</p> <p>(a) Active learning</p> <p>(b) Coherence</p> <p>(c) Transformative type</p> <p>(d) Duration</p> <p>C. Educator outcomes:</p> <p>(a) Knowledge and skills</p> <p>(b) Disposition</p>	<p>Educator outcomes:</p> <ul style="list-style-type: none"> • Knowledge and skills • Disposition <p>Recurring challenges</p> <ul style="list-style-type: none"> • Competing interests • Limited time for receiving and delivering training • Lack of districtwide RtI/MTSS 	<p>A. Increased knowledge and skills</p> <ul style="list-style-type: none"> • 2E student characteristics • Strength-based interventions • Resource hubs <p>B. Evolved attitudes</p> <ul style="list-style-type: none"> • Affirmation • Passion • Intrinsic motivation <p>C. Recurring challenges</p> <ul style="list-style-type: none"> • Competing interests • Limited time • Un-unified RtI/MTSS framework

Interpreting the data. Building detailed descriptions is a critical process in a case study (Creswell, 2014). To describe the case of this study (i.e., the 2E Project), I provided a thick description and a logic model with the following information: (a) descriptions of the 2E Project and on-site activities, (b) characterization of the organizational environment, (c) the period in which 2E training is examined, (d)

beneficiaries and assessed needs of 2E training, (e) the underlying logic of operation and productivity, and (f) the key roles involved in the 2E Project.

The use of logic models as an analytic technique is especially useful in conducting case study evaluations; it “consists of matching empirically observed events to theoretically predicted events” (Yin, 2014, p. 155). A logic model explained how the Hope District implemented professional development and a potential relationship between outcomes and activities and the theoretical assumptions of the 2E Project. This program-level logic model was completed by reviewing of documents, archival records, and interview findings. This process of qualitative analysis helped compare and demonstrate the consistency between interview participants’ accounts and the presumed outcomes of the 2E Project.

I employed member checks to validate my initial interpretation of data. I contacted all 10 participants individually by inviting them via email to help establish this study’s credibility (Nine participants were contacted by their work email and one by personal email). The only participant whose work email was no longer in use was contacted by a LinkedIn message. That message contained an invitation; preliminary findings were not shared via LinkedIn. For those who received my email, each person was given a pseudonym I chose for him or her and given the following instructions: (a) use Track Changes and add comments as needed; and (b) confirm particular aspects of the data provided by him or her; in other words, check for errors and misinterpretations. Four participants completed this review; the Hope Learning Specialist, School 4 Learning Specialist, Hope Administrator A, and State Administrator A made no changes to my

descriptions of the 2E Project and Hope District and interpretation of the data. A summary of strategies used in this data analysis follows (Table 15).

Table 15

The General Analysis Procedure

Steps	Strategies
1. Organizing the data	<ul style="list-style-type: none"> • An electronic portfolio • A separate folder of handwritten notes and hardcopies of materials
2. Reading and memoing	<ul style="list-style-type: none"> • Overview of the entire database; setting aside predetermined research questions • Reflection
3. Reducing the data into themes	<ul style="list-style-type: none"> • Theoretical propositions • Open coding • The constant comparative method
4. Interpreting the data	<ul style="list-style-type: none"> • Thick description • A logic model

Trustworthiness

To validate conclusions, strategies to build trustworthiness were used throughout different phases of the research, including reliability (dependability), internal validity (credibility), and external validity (transferability) (see Table 16). In the research design phase, I enhanced reliability and internal validity by revealing the theoretical framework of the study and my position vis-à-vis the case being studied. In addition, I tried to increase the transferability by recruiting participants from four school sites in one school district. The four cases were likely to yield either similar or contrasting results, which would truly reflect the commonality and/or differences in the study sites. In the data collection phase, I applied triangulation by using multiple sources of data and creating a case study database to preserve data in a retrievable form. Those strategies increased reliability and internal validity. Maintaining a chain of evidence is another strategy to

increase reliability of the information. It allows readers and other researchers to follow “the derivation of any evidence from initial research questions to ultimate case study conclusions” (Yin, 2014, p. 127). In the data analysis phase, I continued data triangulation to confirm the emerging findings by repeatedly reading the transcripts. To increase external validity, I developed detailed descriptions. A thick description enables readers to “determine how closely their situations match the research situation, and hence, whether findings can be transferred” (Merriam, 1998, p. 211), and it can bring about similar outcomes as naturalistic generalizations do—readers can “learn from the case either for themselves or to apply to a population of cases” (Creswell, 2013, p. 200).

Overall, to enhance the quality of this case study, I established an audit trail. To do so, Merriam (1998) explains, “[T]he investigator must describe in detail how data were collected, how categories were derived, and how decisions were made throughout the inquiry” (p. 207). I kept a researcher’s journal. My research advisor served as an auditor examining how categories and major themes were derived. I improved the final report based on feedback from my research advisor and research participants.

Table 16

Strategies to Build Trustworthiness

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

Note. Adapted from “Qualitative Research and Case Study Applications in Education,” by S. B. Merriam, copyright 1998 by Jossey-Bass and “Case Study Research: Design and Methods” (5th ed.),” by R. K. Yin, copyright 2014 by Sage.

In summary, this is the first known case study to illuminate the twice-exceptional professional development practices in Colorado. First, this study aimed to understand Colorado educators' experiences of participating in the 2E Project. Second, this study aimed to understand administrative supports 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.

Social constructivism was the framework utilized in this study. Data collection methods included documentation, archival records, and interviews. Strategies to enhance

the trustworthiness of this study consisted of replication logic, multiple sources of evidence, case study database, chain of evidence, logic models, member checks, the researcher's position, the audit trail, and a thick description. Open coding and the constant comparative method were used to develop major themes.

CHAPTER IV

ANALYSES AND FINDINGS

The case of this case study evaluation was the 2E Project in the Hope District in Colorado. The first two sections of Chapter IV thus were intended to provide descriptions of (a) research participants' academic background and involvement in the second-year 2E Project and (b) the 2014–2016 2E Project in the Hope District. Data sources used for the first two sections consisted of documentation, archival records, interviews, and the researcher's notes. The third section of Chapter IV presents themes that emerged mainly from the interview data. The themes were first constructed by 2E Project trainees' experiences and perceptions and then triangulated by the information provided by the Hope District and State Administrators.

Research Participants

There were four groups of participants in this study: (a) Group 1 ($n = 5$): Educators who participated in all three phases of the 2E Project (i.e., Level 1, Level 2, and the second-year, on-site initiatives); (b) Group 2 ($n = 2$): Educators who participated in the Level 1 and/or the second-year initiatives but missed Level 2; (c) Group 3 ($n = 2$): Administrators in Hope District that coordinated the 2E Project; and (d) Group 4 ($n = 2$): Administrators at the Colorado Department of Education that coordinated the 2E Project. The research participants' academic background in relation to special education and

gifted education is provided in Table 17. Five out of eleven participants had no exposure to special education or gifted education in their undergraduate training.

Table 17

Participants' Training Background

Participants	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

Table 17 (continued)

Participants	Main Responsibilities	Highest Degree	Undergraduate Coursework in Special Education or Gifted Education	Graduate Coursework in Special Education or Gifted Education
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	2E coordinator, gifted education specialist	Ed.S. and M.Ed.	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)

According to the findings from interview question 1.10, the 2E cohort members who participated in the interviews considered the 2E Project highly worthwhile. They had varied levels of involvement in the second-year, on-site initiatives: mini-modules and RtI/MTSS framework (Table 18). Two members took on additional tasks as an extension of the Year 2 training. The School 1 Teacher delivered training on writing SMART goals to fellow teachers on an as-needed basis. The Hope Learning Specialist incorporated twice exceptionality into training for special education providers in the Hope District.

Table 18

Rating and Year 2 Involvement

Participants	Year 2 Involvement			The Worth of 2E Project*
	Mini- Modules	RtI/MTSS Framework	Other	
Group 1				
School 1 Teacher	√	√	√	5
School 2 Teacher A		√		5
School 2 Teacher B	√	√		5
School 3 Learning Specialist	√	√		5
Hope Learning Specialist			√	4
Group 2				
School 2 School Psychologist	—	—	—	5
School 4 Learning Specialist	√			5

* 1 = low, 5 = high. $M = 4.86$.

Note. In the online survey used in this study to recruit partial completers, three educators rated the worth of the 2E Project Average (3), Above Average (4), and Very High (5).

The 2E Project of 2014–2016

The Origin

The 2E Project was made possible at the CDE because of (a) the connection with special education and (b) IDEA Part B grants. The State Administrator A explained:

CDE allowed it to happen and facilitated it.... They gave me permission to seek funding. We used IDEA money... the funding came through special education money... We were allowed to apply for that.... That was really important that everybody at CDE understood that this actually was part of the mission of special education. (Interview, March 13, 2017)

The IDEA funds for the 2E Project targeted professional development: building classes, delivering workshops, paying consultants, covering travel cost, purchasing materials, etc.

The purpose of the 2E Project was to “build capacity in districts to recognize and meet the needs of twice-exceptional students” (PowerPoint: CDE 2E Project Introduction).

Specifically, the 2E Project was designed to “help local education agencies, in this case,

districts or BOCES, to be able to identify their twice exceptional students and to meet their needs in the classroom” (The State Administrator A, Interview, May 5, 2017). The State Administrator B confirmed that the mission of the 2E Project was to “help a district to build capacity to support and identify twice-exceptional students.”

The Office of Gifted Education, which oversaw the delivery of the 2E Project, was accountable to the Exceptional Students Services Unit (ESSU). In other words, the Office of Gifted Education was responsible to the ESSU to submit the budget appropriately. In the early years of the 2E Project, after training all the administrative units (AUs), the 2E Project facilitator would “go back and train (the AUs) again” (State Administrator A, Interview, May 5, 2017) because the turnover was high and there was a need to train new teachers and administrators, according to the State Administrator A. The State Administrator A explained that the 2E Project was granted budgets each year because the funds were spent responsibly, and the 2E Project was implemented as it was planned. The 2E Project is a collaborative work between the CDE and administrative units. The CDE’s deliverables and the commitment that the CDE asked from partner administrative units are provided in Table 19. The CDE also provided ideas about potential products that 2E cohorts could develop; the list included (a) build a 2E team to serve the AU, (b) create guidelines with a flow chart of identification procedures and programming options, (c) develop appropriate forms for services, (d) design a 2E class for the AU and offer it for credit, and (e) create a PowerPoint presentation for every school to use as staff development (PowerPoint: CDE 2E Project Introduction).

Table 19

CDE's Deliverables and an AU's Commitment (PowerPoint: CDE 2E Project Introduction)

Colorado Department of Education Deliverables	Administrative Unit Commitment
Highly qualified personnel Clear and frequent communication Up-to-date and accessible resources High-quality Level 1 and Level 2 training Materials for training Follow-up visits that meet AUs' needs	Identify school teams Provide contact information at the school and district levels Identify dates for all events Ensure that participants have access to technology needed to complete Level 1 online class Print all materials needed Ensure involvement of district directors or their designees throughout the project Arrange substitute coverage for Level 2 training, Year 1 follow-up days, and Year 2 days

The CDE encouraged all educators who were interested in teaching and serving gifted students with disabilities to be part of the 2E Project. It had three phases: (a) Level 1 consisted of a seven-week online course; (b) Level 2 consisted of a two-day workshop and on-site visits; and (c) the second-year consisted of on-site initiatives in partner districts and BOCES. Information pertaining to course contents and requirements is provided in Table 20.

Table 20

Levels 1 and 2 Training Provided in the 2014–2015 School Year

Level 1	Level 2
Online; Moodle platform	Face-to-face
<ul style="list-style-type: none"> • The Paradoxical and complex needs of 2E students • How the learning environment and teaching style impact the success of 2E students • A review of the basics of MTSS/RtI for use in 2E identification and programming • The strength-based programming within a MTSS/RtI framework in the development of an educational plan • Identification of evidence-based strategies for 2E students • Suggestions for working with parents of 2E learners • Collaboration with others to develop an educational plan 	<ul style="list-style-type: none"> • Awareness of how the learning environment and teaching style influence the success of the 2E student • Practice in the use of a MTSS/RtI problem-solving model to analyze data from a variety of sources to identify (a) student strengths, (b) student needs, (c) potential interventions, and (d) delivery options for 2E students • Strategies and resources to address both strengths and challenges of 2E students • The opportunity to collaborate with the school team or with others to develop an educational plan that is responsive to the case study • The opportunity to discuss various 2E programming options in districts
Online course materials, Twice-Exceptional Students Level 1: An Introductory Resource Book (CDE, 2012b)	Twice-Exceptional Students Level 2: Establishing an Educational Plan Through a Collaborative Problem-Solving Model (CDE, 2009)
One and one-half (1.5) credit hour (\$82.50) or CDE renewal credit (22.5 hours) (\$0.00)	One (1.0) credit hour (\$55.00) or CDE renewal credit (15 hours) (\$0.00)
January–March 2015 March–May, 2015	November 2014 in Pikes Peak Region April 2015 in West Central Region May 2015 in Metro Region
A score of 80% 3 hours and 15 minutes per week	Attendance for both days
All sessions were completely online.	Participants arranged substitute coverage and expenses through local resources.

Note. Information was included in 2014–2015 Twice-Exceptional Training Level 1 Online Course (flyer) and Level 2 Workshops (flyer).

The second year of the 2E Project took place in the CDE's partner districts or BOCES; participants worked on things that reflected the needs of their home districts or BOCES. In addition to the Hope District, four other districts from the Metropolitan Region partnered with the CDE at the same time; one was from the North Central Region.

The Implementation in the Hope District

The beginning of the 2E Project in the Hope District was “easy,” according to the Hope Administrator A:

It was very easy to get involved with it. We just had people sign up. Really, it was free, which was fantastic and that really helped a lot. . . . We all at the beginning attended a sort of webinar session, informational session. . . . [Facilitator] and [Facilitator] were our initial consultants, and they just told us a little about what it was going to be like and we just got all those people from our school. They have a special webinar session just for us . . . it was for Hope District personnel. I did some coordinating at the beginning just to make sure everyone was getting the information about the webinar and everything like that, had to get everyone's contact information to our CDE consultants, but it was pretty easy in terms of logistics to get people involved. And then from there, they were automatically registered for the class, which I think was on Blackboard, level one training we used the Blackboard. It was pretty straightforward. (*Note.* Before the 2013 school year, the online learning platform was Blackboard. The Hope 2E cohort used Moodle.) (Interview, March 13, 2017)

The Hope Administrator B provided a brief overview of the past and present of the 2E Project:

We agreed to take that course and put it out there to our GT coordinators and principals if they had any other people interested in taking it. So, from that we created a cohort in four pilot schools, including a cohort here at the admin building with us and our special education department. . . . I think there were about 12 to 15 participants in that initial group, and that was almost three years ago, and then from there we just created the framework and the mini-modules and the resources, and implemented it into those four schools, but then continuously put it out there for other schools' resources as needed. . . . They're beginning to show interest in the CDE courses, and they're also taking them [i.e., CDE training], so the group has grown . . . probably over maybe 20 to 30 now we have,

participants that have taken either the Level 1 or Level 2 training. (Interview, April 5, 2017)

As for the four pilot schools, they were called “the coalition of the willing” by the Hope Administrator A. The Hope District provided no enticement for those pilot schools except for compensating substitute teachers; those were schools “who felt like they had a need at their school, and they wanted to address that need first.” The Hope Administrator A continued, “They were willing to be a part of a broader district cohort to develop our resources.” Many schools showed interest in the beginning. The Hope Administrator A recalled:

Originally, we had six or seven schools who were interested, and we had them all going through, and then at different points, some of them kind of gradually dropped out. One school dropped out fairly early when they felt it was just too much to take on; another school dropped out as the Level 1 training got a little too intensive. In some schools, we only had maybe two or three people involved... School 3 at one point had five or six people involved, but they kind of dwindled down to maybe about four. (Interview, March 13, 2017)

The Hope Administrator A emphasized the importance of the will-based commitment:

If we were trying to drag people on for this first experience, we wouldn't have got the same collaborative commitment that we needed to. There were a couple of times I sort of talked to people through like “I know it's hard, I know, I think it's beneficial for your school, for your kids and for the district if you can stick with us,” but for the most part I didn't try to strong arm anyone into staying. (Interview, March 13, 2017)

The 2E cohort completed Level 1 training during September 15–November 2, 2014 and the Level 2 workshop during December 4–5, 2014. The first Year 1 on-site visit by the CDE took place on February 23, 2015. The Hope District hosted an end-of-year review meeting with the cohort and CDE consultants on May 9, 2016. During the intensive preparation and implementation period of 2014–2016, the Hope District cohort developed the mini-modules and *2E MTSS Tier 1 Framework*.

Mini-modules. The idea of creating mini-modules was driven by a common threat to professional development—time. The Hope Administrator B recalled:

The challenge is that they're still trying to fight for time from their administration to do this work and share this work. So then that's what I said, "Let's think of ways to do this in smaller chunks. What if you're given 10 minutes, only 10 minutes, at the beginning of every staff meeting? What are some quick things that you can give teachers, at least if it's just 10 minutes of ongoing thinking?" (Interview, April 5, 2017)

The Hope Administrator A described how the cohort established the mini-modules:

We did an outline with CDE Facilitator. . . . We went through the outline of different sessions. . . . We came up with eight to 10 mini-module sessions. So each school said they'd volunteer to take on creating a couple of them. Once we created them we put them into a Google Drive folder. Any school could access them. When we come back together for our regular meetings, (we) share(d) about how it went. People could clarify any questions they might have about when they're doing this. . . . That's how we rolled it out for those mini-modules.

Because it's always difficult to find time at early release days, or professional development days, we wanted to get little five-minute segments, we could do five to 10 minute units. . . . And we found that to be most effective. (Interview, March 13, 2017)

The main purpose of the mini-modules was to make the staff more aware of 2E students' characteristics and needs so that they can support students in a variety of ways: socially, emotionally, and academically. As the Hope Learning Specialist said, "I would think that the modules really just train teachers in identification and understanding so they can support students in a variety of ways: socially, emotionally, and as well as academically" (Interview, April 19, 2017). Considered by some as "very promising" and "an outstanding idea" (State Administrator A, Interview, May 5, 2017), the mini-modules are PowerPoint slides; some of them have videos embedded in them. In each of their home schools, the 2E Project cohort asked to get on the agenda for five to ten minutes at a monthly staff meeting. The 2E Project cohort got to demonstrate what they had been learning and doing by presenting the mini-modules. The mini-modules were used as

training materials as well as resources that teachers would be referred to when they had questions about twice exceptionality. The State Administrator A thought, “[T]hat’s the way that they could multiply their efforts and get information out in a lot of schools” (Interview, May 5, 2017). The School 4 Learning Specialist described the development and implementation of the mini-modules:

[W]e all worked collaboratively together to really be leaders and be on the forefront of creating awareness for what this population looks like . . . we presented those at the beginning of staff meetings each month . . . (mini-module presentations) were mainly just intending to get information out to our teachers and get them thinking about (twice exceptionality) . . . we tried to make (mini-modules) entertaining. (Interview, March 22, 2017)

The School 3 Learning Specialist also gave an example of the 10-minute presentation:

(We did) it as a quick snapshot like, "Okay, what is a twice exceptional student?" . . . What we would do is we would bring it to the group as twice exceptional but then we’d also be like, "You can see how this is applicable to all your students," because a lot of it ends up just being good teaching. That helped drive the buy-in on that. Then we also had teachers at the end of the year, "Do you have a student who has any of these characteristics?" . . . That got them talking and thinking about those kinds of students. (Interview, March 24, 2017)

There were many success indicators for the mini-modules. The Hope Learning Specialist noticed that “people are using the term (i.e., 2E) more” (Interview, April 19, 2017). The School 2 Teacher B also noticed a couple of a-ha moments from staff members. The Hope Administrator A considered the attitude change was the biggest success. The School 4 Learning Specialist described how the mini-modules took roots among colleagues:

We did a lot of reviews, so we were always building on prior knowledge from the month before so that staff was getting that sense of like, “Oh, I’m getting it,” “I’m learning this.” “I’m remembering this.” (Interview, March 22, 2017)

Another success indicator was that more 2E students were identified for services.

Hope Administrator A believed that the mini-modules raised the consciousness and, as a

result, strengthened the MTSS referral process. The Hope Administrator A named it “the spillover effect” (Interview, March 13, 2017). Anecdotally, teachers at School 4 and School 3 reported to the Hope Administrator A that they had greater identification of students. The 2E population in the Hope District went from 2.71% in 2014 to 5.3% in 2015. The state average of the 2E population in 2015 was 3.97% (CDE, 2014b, 2016c).

2E MTSS Tier 1 Framework. The cohort established the 2E MTSS Tier 1 Framework because there was no district-wide MTSS process. The protocols “came out of each school’s own processes that they (i.e., the cohort) developed and they felt were effective” (the Hope Administrator A). The protocols contained these documents:

- 2E MTSS Process Flow Chart
- 2E Referral for Problem-Solving Team (PST)
- PST Required Information Checklist
- Parent-School Partnership
- Student Interview
- 2E Tier 1 Intervention Chart
- 2E Problem Solving Plan/SMART Goals
- Classroom Intervention
 - (a) Universal Screening
 - (b) Steps for Tier 1 Classroom Interventions and Classroom Teacher Responsibilities

The School 2 Teacher A described the implementation of the 2E MTSS Tier 1 Framework:

The paperwork was a way to gather information. Part of the paperwork process for teachers would be to have them write down any current test scores or previous test scores, behavior. It had a list of things that we wanted them to look at so we could get an idea of the whole child and for them to really be looking at data and then an opportunity for them to put down behavior.

The other thing it did was they had to put down things that they had already tried. We created a couple lists of suggestions. . . . We have a list of things to try and keep track, did this make any difference; did it not make any difference. It was a way to gather all of that information.

If a teacher was just really overwhelmed and needed to meet, we would just go ahead and meet and help them with that process. Then with that paperwork when we met, we would go through that and try to determine what more can we

do; do we need to look at identification. All of this was even before we even thought about, do we need to test this child? It was “How do we help get this kid successful in the classroom?” It was just organizing that process. (Interview, March 27, 2017)

The School 3 Learning Specialist also commented on the implementation and impact of the framework. The Specialist observed a school-wide culture to understand a student from a whole child perspective:

Then as far as the student identification, we worked a lot with our intervention team or our RtI team. I’m a member of it and so again just bringing up the term ‘twice exceptional’. . . . A lot of what we used for identification forms were taken by the district and with other schools and reworked.

Again, just bringing that model to our intervention, our RtI here and really looking at students and making sure they don’t fall through the cracks and also playing towards strengths I think all of that worked quite well.

Now we’re looking at the whole child much more and looking at both strengths and weaknesses involving the teachers in the process and involving the parents and the student in the process so because of that I think that has really made a huge difference and it’s extremely helpful. Again, you get to know your students very, very well and on a deep level, which some teachers always did but I think it’s just much more school-wide personality right now. It’s a big culture shift. (Interview, March 24, 2017)

Feedback on the 2E Project. The 2E cohort in the Hope District recognized the importance of the 2E Project. The School 3 Learning Specialist emphasized the accessibility of the 2E Project:

It was very easy to get involved with it. We just had people sign up. Really, it was free which was fantastic, and that really helped a lot. (Interview, March 24, 2017)

The administrators in the Hope District affirmed the accessibility as well:

I did some coordinating at the beginning just to make sure everyone was getting the information about the webinar. Had to get everyone’s contact information to our CDE consultants, but it was pretty easy in terms of logistics to get people involved. And then from there, they were automatically registered for the class. . . . It was pretty straight forward. (Hope Administrator A, Interview, March 13, 2017)

(CDE) put out the training, and we signed up and gathered our teachers and made sure they signed up, and we went through the (training). (CDE 2E facilitators)

came here, and we all met here, and it was pretty fantastic. The feedback, initially, was really positive, and then now that we just keep promoting the classes that are available. (Hope Administrator B, Interview, April 5, 2017)

The 2E Project was highly regarded by the participants; they gave the 2E Project the highest credit:

Just because I've been able to take so much from it, and even four years later, I'm still implementing the things that I learned. . . . this is something that I've continued to use and have an interest in, so much so that I'm taking the course again. (School 1 Teacher, Interview, April 7, 2017)

Because you're improving your knowledge on what twice exceptional is, which is going to help all kids in general, so I think that's why I would give it a five (the highest ranking to consider the worth of the 2E Project). (School 2 Teacher B, Interview, April 17, 2017)

(It) motivated me and [has] given me energy to support this population. It has prompted me to share information with my colleagues, especially in the RtI format or framework, and it has influenced my work with individual students like the one I was telling you about before, to really look at what is the strength of the student and how to leverage that to help support them. (School 2 School Psychologist, Interview, April 5, 2017)

Honestly, I found it very much worthwhile so I don't really have a lot to complain about. Out of all my trainings it was one of the best I've had because I've used so much of it in the classroom and I've used so much with the staff. It's very rare you go to a conference and you come back and it changes your teaching. Usually you come back and you maybe do one thing. This really shifted my whole outlook. Made me change my job. . . . That's a huge shift. (School 3 Learning Specialist, Interview, March 24, 2017)

I thought the training was very comprehensive. . . . I think the level one was a little too intensive. . . . It was very good, and I understand the CDE wanted to make sure if they were verifying credit hours. . . . I think anyone if they wanted to for a graduate credit they had to pay a very small amount, so that was another huge enticement, this free professional development hours in an area that they were interested in. . . . The level two was excellent, just because we had time to get into groups and do some role plays, especially do the role plays of the staffing meetings was great, it was really good, it was very powerful. And I think it gave people confidence that they could go ahead and facilitate (PD) in their schools. . . . Cohort group, you know, as a sort support and ideas and brainstorming. So I thought the structure of the project was really good. (Hope Administrator A, Interview, March 13, 2017)

The School 2 Teacher B thought the 2E training was still needed after the project ended, given the mini-modules are convenient in terms of being a quick reference of twice exceptionality.

Regarding the Level 1 online course, the cohort members expressed mixed experiences. Several educators from School 1 took Level 1 at the same time; therefore, the School 1 Teacher had multiple collaboration opportunities with colleagues, given the training was delivered online.

We did the online training together. Even though it was online, we did a lot of conversations with each other as we were going through it and placing kids in some of those profiles. It's like this kid fits here, and let's look deeper. (Interview, April 7, 2017)

Completing a case study was a requirement of the Level 1 training. Technology facilitated the learning of the School 2 Teacher A:

We did a lot of online blogs, and I could email the teachers and everything and say, "Here's what's going on. Do you have some suggestions to try?" I felt that was very helpful. (Interview, March 27, 2017)

For the School 4 Specialist, the oldest among the 2E cohort participants in this study, Level 1 was the Specialist's first online learning experience:

I really did like Level 1 a lot. I liked doing the online learning . . . responding to discussion questions in writing. . . . That was my first time taking an online class and I really enjoyed it. I learned a lot. I felt like the materials were really laid out well. A lot of resources were provided. It was a wealth of material. (Interview, March 22, 2017)

The School 1 Teacher considered each phase of the 2E Project indispensable:

I think Level 1 and Level 2 were important for that education part to make myself aware, but the cohort part allowed me to communicate more with other people and to have those conversations and make those connections. I think all of the levels are important, and I really liked the way that they were organized so I could

educate myself before going into these conversations with other educators in the cohort. (Interview, April 7, 2017)

When speaking of Level 2 training, people remembered the mock IEP/RtI meeting the most:

We actually had one of the (CDE) facilitators come to our building and sit in on a mock RtI meeting with us and bring that knowledge to some other teachers. It was really whatever we needed. Wherever we saw a weakness in, we had the ability to go to them and say, "Hey, we need some help. What can you do for us?" That was great. (School 1 Teacher, Interview, April 7, 2017))

When we sat down and did a mock IEP meeting, teachers just immediately went back to their old habits, so I think it's good to follow up and check in on those even now. We did have them. Somebody came and sat through our team meeting at our school, which was very helpful. . . . Those intense or longer sessions were the most beneficial to me where we were really sitting there and practicing IEP meetings and looking at real cases either from students that they had had or bringing up our own students. (School 2 Teacher A, Interview, March 27, 2017)

I thought the mock meeting was very . . . the case study as well . . . I could also say that was also helpful just because you get to know your student really well. (School 3 Learning Specialist, Interview, March 24, 2017)

The 2E cohort also really liked the follow-ups and Year 2 cohort meetings.

I think even just going to a meeting the time before and time after just really prompts me to have it on my mind and to talk about it with colleagues. (School 2 School Psychologist, Interview, April 5, 2017)

I would say the cohort year when we at School 4 worked together with staff from the other schools in Hope District. I think there were four other schools that participated. And we all worked collaboratively together to really be leaders and be on the forefront of creating awareness for what this population looks like. (School 4 Learning Specialist, Interview, March 22, 2017)

We had the regular meetings as part of the cohort where (CDE Facilitators) would come out, and those were great. We had those scheduled as part of both Level 2 training and the ongoing cohort meetings. I think at each of the meetings, having clear outcomes . . . that we wanted action items that we wanted to address to try to get people going saying "Okay, next time this particular group," . . . so, it was good just because I think setting up that time and the structures for them and making sure they had clear takeaways or action items, but then just letting them share their own experiences and ideas was powerful. (Hope Administrator A, Interview, March 13, 2017)

Themes

Eight themes emerged from the interview data. Three related to educators' professional learning experiences (RQ 1): (a) increased knowledge and skills, (b) evolved attitudes, and (c) recurring challenges. One related to educational services for 2E students (RQ 2): (d) utilizing a team approach. Two related to student learning outcomes (RQ 3): (e) improved performance and (f) difficulty in measuring impact. Two related to organizational changes (RQ 4): (g) improved school culture and (h) planning for the future. Additionally, 13 subthemes emerged. Research questions, themes, and subthemes are presented in Table 21.

Table 21

Research Questions, Themes, and Subthemes

Research Questions	Themes
RQ 1: 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"> • 2E student characteristics • Strength-based interventions • Resource hubs B. Evolved attitudes <ul style="list-style-type: none"> • Affirmation • Passion • Intrinsic motivation C. Recurring challenges <ul style="list-style-type: none"> • Competing interests • Limited time • Un-unified RtI/MTSS framework
RQ 2: How have participants developed and implemented educational services for 2E students?	D. Utilizing a team approach <ul style="list-style-type: none"> • Identification • Instruction
RQ 3: What are participants' perceptions of the 2E Project's impact on 2E students' learning?	E. Improved performance <ul style="list-style-type: none"> • Academic outcomes • Affective outcomes F. Difficulty in measuring impact
RQ 4: What were school- or district-level changes that resulted from the 2E Project?	G. Improved school culture H. Planning for the future

Themes Related to Research Question 1

The 2E cohort's experiences serving 2E students before, during, and after the 2E Project Training were increased knowledge and skills (Theme A) and evolved attitudes (Theme B). Additionally, participants in the Hope District mentioned recurring challenges (Theme C) that influenced their experiences. The administrators at Hope District and the CDE who were involved with the 2E Project evaluated the 2E cohort's

learning by anecdotal reports, case studies (as the training assignment), and perception surveys.

Our main source of feedback was from the participants specifically, so they brought the feedback from their schools. (Hope Administrator B, Interview, April 5, 2017)

Many variables that go into making up student achievement. So, what we look at mostly was teacher behaviors and teacher perceptions. . . . In terms of directly applying techniques, we always did that with our case study in the Level 1 class. (State Administrator A, Interview, May 5, 2017)

Increased knowledge and skills. Evaluating their growth in the 2E Project, the 2E cohort reported increased knowledge and skills in spotting 2E students and developing strength-based interventions. Many of the participants became resource providers for their colleagues. The School 2 Teacher B described how she benefited from delivering mini-modules— “Anytime you have to present something, you have to know what you're talking about. So, you grow as a learner” (Interview, April 17, 2017)

2E student characteristics. The 2E cohort members repeatedly reported having a better understanding of 2E students’ characteristics. In other words, they became knowledgeable about what to look for in a struggling student.

I think before I wasn't truly aware of what to look for in a kid, in a gifted kid, in a struggling student. . . . After the training, I started to not only look at the students that I have now, but to look at students that I've had in the past and wondering if maybe that something else was going on. (School 1 Teacher, Interview, April 7, 2017)

I think I'm more understanding of the kids needs and realizing that the problem may be deeper than a surface level problem. (School 2 Teacher B, April 17, 2017)

Before . . . I would say I wasn't really aware. . . . During the training, I really learned what a 2E student was and that was when he popped in my mind instantly. . . . Since the training what I've noticed is how because I'm aware of it and because I've taught the school a little bit about it through some trainings how much more aware we are of those students. (School 3 Learning Specialist, March 24, 2017)

Before . . . I would say my understanding was fairly surface level, about how to really focus on strengths of those children. I think during the training I was really prompted to think about how to meet the needs of those students but use a strength-based approach. I also think I learned how to be a support for other staff, other teachers in who might have 2E children and not be aware of it. So, I just think it was an awareness. I think afterwards I felt a lot more confident in talking to teachers about characteristics of 2E children, the needs that they might have, and then again really focusing on strength in order to help school be a good place for them. (School 2 School Psychologist, April 5, 2017)

I would say the training brought to light a clearer understanding of what 2E kids look like, their [asynchronous] development. (School 4 Learning Specialist, Interview, March 22, 2017)

Strength-based interventions. Those who had access to twice-exceptional students during the project had experiences developing and implementing strength-based interventions. Their experiences began with case studies that were part of the training assignment.

[The 2E training] made me look twice at kids and then think of different strategies to work with them. I've definitely used a lot of strength-based programming to build that confidence and build that rapport with kids. I think that [2E training] has helped a lot. (School 1 Teacher, Interview, April 7, 2017)

I think one of the biggest things that I learned from it [the 2E training] and that I adjusted in my teaching practices was recognizing that we shouldn't connect [strength] with [students'] weakness or connect a hobby or something they love with their weakness. (School 2 Teacher A, Interview, March 27, 2017)

The School 2 Teacher A described her life-changing moment:

For me it was a life-changing, teacher-changing moment, and I still apply that [strength-based approach] a lot. . . . It was a huge change for me to spend as much time focusing on the strength and what we're doing with that as the deficit. That was after 20-plus years of teaching, so that was amazing. (Interview, March 27, 2017)

Resource hubs. With the knowledge they gained in Levels 1 and 2, the 2E cohort members became resource hubs in their buildings. They spread the knowledge and served as internal training providers. The researcher made this comment during an interview

with the School 2 Teacher B—“The 2E cohort became the resource-go-to group”

(Interview, April 17, 2017). The School 2 Teacher B confirmed. Hope Learning

Specialist worked in the administrative building supporting all special services providers

in her district; she had this response:

[B]efore [the 2E Project], if they approached me about a student that was confusing to them, I wouldn't have any idea. During [the 2E Project], I was able to give a little more direction around a student who might be twice-exceptional, or I might think is twice exceptional to a special educator. . . . [P]ost-training... all I do is [to] offer guidance and who they would connect with. (Interview, April 19, 2017)

The School 1 Teacher also served as a Gifted and Talented Coordinator in her school.

She trained her fellow teachers to write SMART goals. Other cohort members delivered

mini-modules to their colleagues.

I did some professional development on SMART goals. (School 1 Teacher, April 7, 2017)

My job was to train everybody on that [problem-solving] team with what I had learned. (School 2 Teacher A, Interview, March 27, 2017)

We developed some [mini-modules]. We shared them with the team, and we presented to our staff on them. (School 3 Learning Specialist, Interview, March 24, 2017)

[W]e developed these mini-modules, and we presented those at the beginning of staff meetings each month. And so, the teachers were open to it [the 2E concept], and the training also opened their eyes to specific students that they had in their classes. (School 4 Learning Specialist, Interview, March 22, 2017)

The School 2 School Psychologist, though not involved in any second-year initiatives,

was confident about “being a support” for other colleagues who might have 2E students.

I also think I learned how to be a support for other staff, other teachers in who might have 2E children and not be aware of it. (School 2 School Psychologist, Interview, April 5, 2017)

Evolved attitudes. The evolved attitudes represent a stronger connection between personal and professional goals. The 2E Project also met participants' affective needs.

Researcher: So, the 2E project really enhanced your energy and your passion.
School 2 School Psychologist: Yes. And confidence. I think confidence is a big part of that. Feeling confident that you know what this population is about and how to help them. (Interview, April 5, 2017)

Hope Learning Specialist connected several of her professional growth goals to the 2E training. In her Professional Goal Tracking Form, she listed—"I will demonstrate knowledge of and pedagogical expertise in the area of specialized instruction." She explained:

Demonstrating knowledge in the area of specialized instruction, it aligns with that [2E training] because specialized instruction is needed. Writing goals for students is part of what I do, and it aligns with that [2E training] also. (Interview, April 19, 2017)

The School 1 Teacher also had SMART goals as her goal for professional growth: "I look at SMART goals differently. . . . I have some in my professional goals that's educating other teachers about SMART goals and twice exceptional students" (Interview, April 7, 2017). The School 2 Teacher A modified her professional growth plan when she was receiving the 2E training.

I redid my professional development to make sure they were showing growth in the areas they were already strong in as well as areas that they needed improvement and not just spend my time only focusing on their weak areas. For me, it matched up perfectly with what I was working on. (Interview, April 7, 2017)

The School 3 Learning Specialist changed his career path:

I completely shifted so I'm in special education, so it's changed my growth plans dramatically because this is a group of students I wanted to work with and I wanted to see and really help. . . . Just very much, it's helped change my teaching.

Out of all my trainings it was one of the best I've had because I've used so much of it in the classroom and I've used so much with the staff.

Like I said, it was a very fulfilling and rewarding class and it was very fulfilling training. Because of that and because I felt like it was directly applicable to my students, that alone was enough to make me want to finish and to continue on. (Interview, March 24, 2017)

The School 2 School Psychologist had this goal even in the third year of the 2E Project:

“[A]ctually one of the students I'm working with right now would be considered 2E, and my growth plan with him was to access peer support for him in the area of autism”

(Interview, April 5, 2017). The School 4 Learning Specialist said, “I made that one of my goals, that I would take the class . . . it was very purposeful to be able to have a goal related to what I was doing that would help me professionally” (Interview, March 22, 2017). The Hope Administrator B had this observation:

I think the retaining piece has been ideal, because I think from the beginning we just got some really committed teachers that have these types of students regularly, so they're more committed, because they see these kinds of kids. (Interview, April 5, 2017)

Affirmation. The 2E Project participants affirmed the worth of the 2E Project because it fulfilled their calling as educators personally and professionally. The Hope Administrator B explained how the four pilot schools were recruited:

When we started talking to teachers, they were like, "Yeah, we have a lot of those kids in our school," and that's the four schools that were part of that initial group, had a lot of students that fit into that category, so that's why I think we got the most participants from those four schools. (Interview, April 5, 2017)

Educators in those four schools had students who may fit into the 2E category; they felt a need to receive the 2E training. For those who became gifted and talented coordinators, the 2E training was a must-have.

Really. I didn't know that it would be anything that would be good for me to do or good to spread the word about, but I was happy to do it. (Hope Learning Specialist, Interview, April 19, 2017)

I recently have become the GT coordinator for our building, and it was something that I had never done before. I was trying to educate myself as much as I could with GT students. When the gifted department at the district came back with this as an opportunity, it just made sense for me to go. (School 1 Teacher, Interview, April 7, 2017)

I just felt like I really needed to learn more about that combination [giftedness and disabilities]. (School 2 Teacher A, Interview, March 27, 2017)

I really wanted to try and make a difference with them [students who were not getting the services they needed]. (School 2 Teacher B, Interview, April 17, 2017)

That's really why I did because I think when you know a student who you feel like somehow along the lines he was failed and you wanted to make sure that doesn't happen again, that definitely is a motivator. That was a big motivation for me. (School 3 Learning Specialist, Interview, March 24, 2017)

I think having a 2E background and education helps you appreciate the whole child. (School 2 School Psychologist, Interview, April 5, 2017)

I got involved in gifted education because I knew the other coordinator was going to be retiring soon, and I thought, "Well, I want to get in there and kind of learn the ropes before she retires." (School 4 Learning Specialist, Interview, March 22, 2017)

Passion. Educators who participated in the 2E Project with either partial or full experience were eager to share their knowledge and skills. They took actions: presenting mini-modules at staff meetings, training people on the intervention teams, teaching SMART goals, and having informal conversations about twice exceptionality. They cared about capacity building in their schools as well as the Hope District.

I think we need to continue spreading the knowledge that we gained. There's no guarantee that [Learning Specialist] and I are both going to be here or that [Learning Specialist] and I are going to be the ones working with these kids, so we need to build capacity in our building to do what she and I have been able to do as a team. We need to expand the people that do that work [identifying and serving 2E students]. (School 1 Teacher, Interview, April 7, 2017)

Then what's always helpful is if we have more time to train people and to just follow up on everything. (School 2 Teacher A, Interview, March 27, 2017)

I think more training in how you can help other teachers get in the process. How do you get your school on board more? (School 2 Teacher B, Interview, April 17, 2017)

I just wish more teachers would take it. (School 3 Learning Specialist, Interview, March 24, 2017)

I think more guidance from the district as far as what we're supposed to be doing with this knowledge. (School 4 Learning Specialist, Interview, March 22, 2017)

Intrinsic motivation. The Hope Administrator A called the formation of pilot schools “the coalition of the willing.” He continued, “Everyone that was a part of the pilot . . . without any extra compensation . . . and, really, any other extra incentives other than just feeling it was the right thing to do” (Interview, March 13, 2017). The Hope Administrator B further explained that those pilot schools were not chosen by the District—“Just by interest. . . . So, we don't necessarily choose them, it's really them choosing if they want to participate, or if they have a need, or if they have the interest” (Interview, April 5, 2017). The 2E cohort educators demonstrated a high level of work engagement. As the Hope Learning Specialist said, “I did want to be a support to the system” (Interview, April 19, 2017). Being able to apply their learning directly was a positive reinforcement for the 2E cohort.

I saw a lot of great conversations . . . with teachers really wanting to make sure they were doing what was best for the student and see success across the board for the student. I think that was motivation for me was just seeing it work and seeing change going in the right direction. (School 2 Teacher A, Interview, March 27, 2017)

It was a very fulfilling and rewarding class, and it was very fulfilling training. Because of that and because I felt like it was directly applicable to my students, that alone was enough to make me want to finish and to continue on. (School 3 Learning Specialist, Interview, March 24, 2017)

The 2E training participants demonstrated their intrinsic motivation through the desire to learn. Having been applying what was learned from the 2E training, the School 1 Teacher was taking Level 1 again when she was interviewed in Spring 2017.

I'm actually doing course one again. . . . It's been nice practice having that refresher again, especially writing SMART Goals. . . . Just because I've been able to take so much from it, and even four years later, I'm still implementing the things that I learned. (School 1 Teacher, Interview, April 7, 2017)

I wanted to increase my knowledge of twice exceptional learners. So, I was just personally motivated, and I felt that it would help me do a better job, as both a Learning Specialist and a Gifted Coordinator. (School 4 Learning Specialist, Interview, March 22, 2017)

The Hope Administrator B praised the 2E Project participating educators:

I'm proud of the work that they've done, and the commitment. I'm even surprised that it's continued this long with the same people, and to me that's just refreshing and energizing that they're willing to do this work for kids. So, I think that's pretty notable for them. (Interview, April 5, 2017)

Recurring challenges. The 2E cohort expressed three challenges they faced before, during, and after the training: (a) competing interests, (b) limited time, and (c) an un-unified RtI/MTSS framework.

Competing interests. New initiatives in the district took priority over the 2E training. School 2 School Psychologist had this observation: “When the rubber hits the road . . . people are probably going to pick things where they have more higher populations” (Interview, April 5, 2017). The School 2 Teacher B expressed her concern for the third year since the 2E Project was started, “Out of sight out of mind sometimes . . . because there's a lot of other trainings that the district has been a part of. This year's been new math training, the new language of discipline, detail looking” (Interview, April 17, 2017). The State Administrator A mentioned what happened in the 2016–2017 school year: “We had five [AUs] that made a commitment but none of them stuck with it. . . . It's

because they get all this pressure to do other things” (Interview, May 5, 2017). The State Administrator B confirmed the pressure that administrative units were facing by saying, “We don't have a lot of units that are coming out of the woodwork wanting to work with us because they have so many initiatives that they're doing on their own” (Interview, May 12, 2017). The State Administrator B described the situation as happening among those administrative units who demonstrated an interest in the 2E Project but declined to get involved in the 2016–2017 school year:

One of them said, “We are too busy, and we changed our mind.” Another one said, “We're too busy, and we've heard all kinds of stuff that just doesn't sit well with us, and so we're really not gonna spend the time or the effort with this,” and then another one just fell apart. (Interview, May 12, 2017)

Limited time. The time constraint was mentioned by participants of various roles, specifically (a) the lack of time for training and implementation and (b) time conflict for attending follow-up meetings. Regarding the time for training and implementation, the School 2 Teacher A said, “The district needs to just give us more time to make sure it's happening in all the buildings.” The Hope Administrator A described the impact of time constraint on the commitment from the special education department: “That was another person who just felt like it was too big of a time commitment for her. . . . I wouldn't say that they [special education department] weren't onboard, I just wouldn't say we had the high level of commitment [from that department] at first” (Interview, March 13, 2017).

The Hope Learning Specialist had this comment:

Whenever I can share that with people [other Learning Specialists in Hope District], that's great, but still, the ball can get dropped all the time, because there's not enough time. . . . So it's very hard, again, for them to add anything to their plate, even if they wanted to be involved. (Hope Learning Specialist, Interview, April 19, 2017)

Time conflict was an issue for the School 2 School Psychologist and School 4 Learning Specialist because they did not have the chance to complete Level 2 training. The School 4 Learning Specialist suggested, “The only thing I can say about Level 2 is that I wish it had been offered more times throughout the year” (Interview, March 22, 2017).

Having been aware that time has been a huge challenge, the 2E cohort in the Hope District developed mini-modules with intent to spread the knowledge in an efficient way.

The School 1 Teacher recalled:

Just figuring out how we can get it [2E concept] out there without making it seem overwhelming. . . . Being strategic about when we deliver the information, which I don’t know if there’s ever a good time to give teachers more information. (Interview, April 7, 2017)

As stated earlier:

The challenge is that they’re still trying to fight for time from their administration to do this work and share this work [2E Project]. So, then that’s what I said, “Let’s think of ways to do this in smaller chunks. What if you’re given 10 minutes, only 10 minutes, at the beginning of every staff meeting? What are some quick things that you can give teachers, at least if it’s just 10 minutes of ongoing thinking?” (Hope Administrator B, Interview, April 5, 2017)

The 2E cohort members in School 3 delivered the mini-modules four times during the 2E Project, and the School 3 Learning Specialist considered four was a fairly good number since they originally asked for presenting at five meetings. A list of mini-modules and when they were used for professional development by the 2E participants is provided in Table 22.

Table 22

A List of Mini-modules and When They were Used for Professional Development

Mini-modules	School 1 Teacher	School 2 Teacher A	School 2 Teacher B	School 3 Learning Specialist	School 4 Learning Specialist	Hope Learning Specialist
#1 2E Awareness	√ staff meeting	√ staff meeting	√ staff meeting	√ staff meeting	√ staff meeting	√ monthly professional learning
#2 Awareness Strengths & Challenges	√ staff meeting	√ leadership team meeting		√ staff meeting	√ staff meeting	√ monthly professional learning
#2 Awareness Worksheet		√ RtI team	√ staff meeting	√ staff meeting	√ staff meeting	√ monthly professional learning
#3 SMART Goal		√ staff meeting, RtI team		√ staff meeting	√ staff meeting	√ monthly professional learning
#4a Sensory Processing Disorder					√ staff meeting	
#4e Socio-Emotional Needs GT Student			√ staff meeting	√ GT retreat		

Table 22 (continued)

Mini-modules	School 1 Teacher	School 2 Teacher A	School 2 Teacher B	School 3 Learning Specialist	School 4 Learning Specialist	Hope Learning Specialist
#4f Asynchronous Development						
2E CAGT Presentation				√ with a colleague		
2E Project PD Resources			√ staff meeting			
The Twice Exceptional Student (2E)		√ staff meeting, RtI team				√ summer symposium, monthly professional learning
Who is in Your Classroom (PPT)						√ incorporated into other presentation
Who is in Your Classroom (Word)						√ incorporated into other presentation

In spite of success stories, the time constraint remained an issue in the 2016–2017 school year (i.e., the third year of the 2E Project). The School 2 Teacher B said no one was delivering the mini-modules in her school because people did not have time for it.

We haven't been to the cohort meetings this year [2017] because they've been planned on times that we just couldn't get away. There was one the week before PARCC testing, and I couldn't leave my class at that time. (School 1 Teacher, Interview, April 7, 2017)

The Hope Administrator B was aware of the situation and noted that teachers were still interested in the 2E Project:

[T]hey were all invited to come in, and a few of them couldn't make it because of the timing. It happened to be the day before TCAP or PARCC testing, so they were like, "I just can't leave my classroom," but they did express interest that they did want to come and continue to invite them to come and do the work. So, there were a few that couldn't make it, but they said, "Yes. Keep me on the list." (Interview, April 5, 2017)

Un-unified RtI/MTSS framework. The 2E trainers at the CDE adopted the problem-solving approach of RtI for 2E services. Therefore, the 2E cohort was familiar with how to identify and provide services for 2E students by using an RtI framework. During the second year of the 2E Project, the 2E cohort developed an RtI/MTSS framework in response to the lack of a districtwide framework. Having developed and implemented the framework, the 2E cohort participants revealed their concerns over the Hope District failing to serve 2E students because of un-unified RtI/MTSS protocols in schools.

We're missing a big piece of what it takes to have a system that is consistently able to identify and support students with twice exceptionality. (Hope Learning Specialist, Interview, April 19, 2017)

I wish there was an RtI process in the district. . . . I really feel like if the whole district was on the same page it would make 2E SMART goals a lot easier to do and a lot easier to be taken to RtI. (School 2 Teacher B, Interview, April 17, 2017)

I'm a member of it [the intervention team]. . . . We don't have it [districtwide RtI/MTSS framework] to a point where every school follows the same process which I think that is something where it should be standardized just because then when they go to other schools it makes it easier to see [2E students]. (School 3 Learning Specialist, Interview, March 24, 2017)

Themes Related to Research

Question 2

By utilizing a team approach (Theme D), the 2E cohort developed and implemented educational services for 2E students which consisted of identification and instruction. The Hope Administrator A described the work in the Hope District:

We broke up into different groups, one was working more on professional development resources [mini-modules], and another group was working more on the process aspect, creating forms . . . protocols [the framework] that they wanted to establish because we didn't really have a district-wide MTSS process. (Interview, March 13, 2017)

Several people from School 1 took the 2E training; therefore, the School 1 Teacher, who was interviewed, was able to collaborate with her colleagues on 2E cases. Her colleagues included a special education teacher, social worker, and speech pathologist. Going to the training together meant a great deal to her. She said, "I think that there's that connection between special education and gifted education. We're both aware. We're on the same page" (Interview, April 7, 2017). School 1 Teacher A described the collaborative work in her building and the work with the 2E cohort:

We looked in a little deeper . . . we were aware, we were able to identify him as twice exceptional, whereas without that [looking deeper] he would've continued on without anybody really noticing his gifts.

I think the connections in the cohort, we had some conversations with other buildings, but every building seems so unique in how they do things. It was good to hear those conversations, but most of the support that we've had has come from within our building and feeling connected between the four of us.

I think Level 1 and Level 2 were important for that education part to make myself aware, but the cohort part allowed me to communicate more with other people and to have those conversations and make those connections. (Interview, April 7, 2017)

The team/cohort culture was established since the beginning of the 2E Project. The Hope Learning Specialist recalled:

We were all together in a group. . . . They [facilitators] were very interactive, and they [activities] were hands-on, and we were walking around the room. We were talking about students, and we're creating projects [mini-modules and the framework]. (Interview, April 19, 2017)

Further, she added, "I really liked getting together with the teams as teachers afterwards, that second year" (Interview, April 19, 2017). The School 2 Teacher B applauded the District by saying, "The district did put the cohort together, so we give them credit for that. . . . It's just the cohort, which is good, because it brings you back to put it back on the front burner" (Interview, April 17, 2017). When asked to clarify whether or not it was the cohort culture that made the 2E Project special, the School 3 Learning Specialist replied, "Yes. I do. I think it's very much. That's a big part of it, the fact that you go in as a team makes it different" (Interview, March 24, 2017). The School 4 Learning Specialist described the collaboration among 2E participants from different buildings:

I would say the cohort year when we at School 4 worked together with staff from the other schools in Hope District . . . we all worked collaboratively together to really be leaders and be on the forefront of creating awareness for what this [2E] population looks like. (Interview, March 22, 2017)

The School 2 Teacher A recalled how her colleagues were involved in running the problem-solving teams:

One of the teachers, [Teacher B], went through this cohort with me, and then our principals at the time were helping run the meetings. Then we had a group of teachers who were on these teams so that we all worked together. (School 2 Teacher A, Interview, March 27, 2017)

The Hope Administrator A acknowledged the distinctive of teamwork:

Just the collaborative experience was really powerful, ultimately the four schools that we had, even when we started off with one or two other schools, just being able to make those connections and have that ongoing sustained... cohort group. (Interview, March 13, 2017)

Identification. The 2E cohort created a RtI/MTSS framework for two purposes, according to the School 2 Teacher A: For teacher support and for students being better identified so that they can be more successful. The development of the framework included the implementation and feedback from the field; it went beyond the involvement of the 2E cohort members.

The people who were already on the student support team, I think they were pretty involved in it [identifying 2E students] because they helped decide on the paperwork [the framework 2E cohort developed] and everything.

The framework with our RtI process . . . we did implement some and we walked them through how to write a SMART goal in the framework. (School 2 Teacher B, Interview, April 17, 2017)

As far as the student identification, we worked a lot with our intervention team or our RtI team. (School 3 Learning Specialist, Interview, March 24, 2017)

Instruction. The adaptations of instruction in classrooms were accommodations and modifications.

We started doing a lot more ability grouping students, moving them more frequently, trying to match their needs so they weren't struggling in a class that was too high for them. We also looked at promoting them more if they were bored in a class. I had a fourth grader in my fifth-grade room taking eighth grade math, so we tried to do a lot more of that. (School 2 Teacher A, Interview, March 27, 2017)

The School 2 Teacher A conducted a case study where a strength-based approach was implemented:

One student, I do remember he was given specific time that he worked on his strength, and he was an autistic kid who really struggled with some other issues. Instead of always talking about how to deal with the social behaviors, we just started focusing on his strengths and let him share those strengths with the class. (Interview, March 27, 2017)

The School 2 Teacher B provided accommodations to address students' sensory issues, though she referred to accommodations as modifications. The use of graphic organizers could be considered a universal-level intervention.

I've been making more modifications in the classroom. . . . Now, due to the class [2E training], I have been more responsive with more fidgety things. Maybe I'll have them run to the corner and back. Seeing that stress level before it actually happens, minding it, and then having some kids that are maybe below grade level and stuff, putting that graphic organizer up closer. Even though they're all identified as gifted, it doesn't mean they're gifted in every subject. I've been doing more anchor charts and more graphic organizers to help them, and then going up to them personally and making sure that they're okay.

A lot more modifications. I have bouncy balls behind you [the interviewer], where they can sit on a chair and bounce if they need it, for some of the ADHD behavior. (School 2 Teacher B, Interview, April 17, 2017)

As for 2E cohort members who were not classroom teachers, they provided indirect services to 2E students through documenting and coordinating Advanced Learning Plans.

Obviously depending on their needs it's a pretty broad group. It really depends on where they fall in categorically. They might be that they're on a behavior plan if they're on an IEP for example for behavior and so they get support with our behavior specialist but that they're also on an ALP for that as well so working with our GT coordinator and working with their core teachers on that. (School 3 Learning Specialist, Interview, March 24, 2017)

They [two 2E students] both do have Advanced Learning Plans so that is something that we've done to support them. (School 4 Learning Specialist, Interview, March 22, 2017)

Other notable aspects related to the initiatives that the 2E cohort took were: (a) passion to help 2E students, (b) hands-on training, (c) supportive administrators and (d) built-in professional learning hours.

With a strong desire to help students, 2E cohort participants tried to seize every opportunity to apply their knowledge and skills to the services for struggling students. The School 2 Teacher B, who reported providing adaptations in her classroom, believed that the knowledge about twice exceptionality would benefit all students—"Because

you're improving your knowledge on what twice exceptional is, which is going to help all kids in general" (Interview, April 17, 2017). The School 1 Teacher A shared the same vision—"It was going to be valuable for kids. I was going to be able to put it into action right away. In my heart, I knew that it would be best for the students in my class and the students in our building" (Interview, April 7, 2017). The Hope Administrator B, who oversaw the 2E Project from the beginning, had this message to those who showed an interest in joining the work: "Thank you for taking this class. The end result really is to help our kids, whether they're identified or not. It just makes you a better teacher, I think" (Interview, April 5, 2017).

Throughout the entire 2E Project, participants had many opportunities to talk about student cases and exchange ideas with colleagues in the same building as well as those in the cohort. The 2E participants were able to discuss possible interventions, apply interventions, and discuss their implementation. Role-playing and case studies were part of the training and were appreciated by many participants. Many participants practiced identification and instructional adaptations in Levels 1 and 2 because a case study was part of the course requirements—"Participants will apply their learning to a case study throughout the course." (Twice Exceptional Level 1 Course Syllabus)

Hands-on training helped 2E cohort teachers apply their knowledge to their work. The case study assignment and role play were teachers' favorites. The Hope Learning Specialist and School 2 Teacher A specifically mentioned how those hands-on activities fostered the implementation:

We were all together in a group. . . . They [facilitators] were very interactive, and they [activities] were hands on, and we were walking around the room, we were talking about students, and we're creating projects. That is a good learning environment for me. (Hope Learning Specialist, Interview, April 19, 2017)

Those intense or longer sessions were the most beneficial to me where we were really sitting there and practicing IEP meetings and looking at real cases either from students that they had had or bringing up our own students. Part of that was during the school year. Because we chose a few students in our class, and then we would share information and then get to apply it. That was extremely helpful, but I felt like the full-day sessions that we had with all the people that came out to do this were very helpful. (School 2 Teacher A, Interview, March 27, 2017)

The School 3 Learning Specialist had this comment: “I think the rethinking of the intervention model of doing some of the role playing with that was very good and very much helpful” (Interview, March 24, 2017). Hope Administrator A acknowledged the usefulness of the training—“The Level 2 was excellent, just because we had time to get into groups and do some role plays, especially do the role plays of the staffing meetings was great, it was really good, it was very powerful” (Interview, March 13, 2017). The School 2 School Psychologist did not participate in the second year; however, she gave credits to the hands-on training as well:

[The training] integrated with a process that we already have in place, which is RtI, and so it was just a real specific way for us to bring something back to our school and back to our teams to say when our 2E kind of radar went off, “Okay, here’s some resources that we can use.” (School 2 School Psychologist, Interview, April 5, 2017)

Administrators at the school, district, and state levels provided both tangible and intangible support. Their care for the 2E cohort was noted by many:

They’ve been there as we need them [Hope Administrators A and B]. Any kind of question or support that I need, they’re there to give me an answer or to provide feedback.

We had tremendous support from [Hope Administrators A and B] while we were doing that [2E Project], but we also had the support from CDE. (School 1 Teacher, Interview, April 7, 2017)

The Hope Administrator B described how she and the Hope Administrator A helped educators in their district learning twice exceptionality:

So, we're constantly putting it out there that these things are available [2E training information and resources], and if you do find these [2E] students, or teachers come to you with students like this, contact us and we will give you the things that you need. (Interview, April 5, 2017)

To maintain the momentum of the cohort, the Hope Administrator A used the district funds to purchase *Neurodiversity in the Classroom* for members and lead book study. He recalled, "That was something they seemed to really appreciate" (Interview, March 13, 2017). In addition to the book study, the Hope Administrator A used regular check-in meetings to encourage cohort members who were continuing the 2E Project:

It's just having that ongoing check in where people can be supportive of each other, and then re-energizing them with, seeing possibilities, sharing ideas, hearing other success stories. (Interview, March 13, 2017)

As for the Hope Administrator B, her strategy was to "keep the communication and the positivity (regularly)" (Interview, April 5, 2017).

Building administrators' involvement in the 2E Project began with taking the training with the cohort, such as principals in School 3 and School 4. The Hope Learning Specialist recognized the principal at School 3—"It was nice, like the [School 3] principal, he was involved in the whole thing" (Interview, March 24, 2017)

What can we do to work towards the student to increase where they're strong and decrease these negative factors?" Those are some of the things that I do see my administrators doing to help these students. They also view the IEPs. They view the data.

My assistant principal did go through the training, the two trainings and again, every IEP we submit he looks over, any testing we do he looks over. I know that my principal looks over the ALPs. We've got the buy-in that they are aware of the students and of course because they're also aware of how their growth look. (School 3 Learning Specialist, Interview, March 24, 2017)

I think it's interesting that our principal also took the level one training. So, she was supportive from the standpoint that she knew what we were talking about because she did the training along with us. (School 4 Learning Specialist, Interview, March 22, 2017)

I did [mock RtI meeting] (with) two of the special education teachers. Then we had four of the RtI members as well as an administrator [the dean]. (School 1 Teacher, Interview, April 7, 2017)

The Hope Administrators A and B took the training with the cohort as well.

I audited the class just so I could see what they were going through. (Administrator A, Interview, March 13, 2017)

Myself and Administrator A and our cohort went through all of that together. (Administrator B, Interview, April 5, 2017)

Initiatives that took place in school buildings were part of the 2E Project, including conducting case studies, making adaptations, and working with student intervention teams. The cohort members collaborated with colleagues in their schools and in the cohort; therefore, built-in professional learning hours and substitute teachers were indispensable in order for the cohort members to attend 2E training follow-up meetings.

Supportive administrators played an important role here. According to the School 2

Teacher A:

I think our administrator was willing to give us time at the team meetings to re-look at our paperwork, to just have time to discuss and make modifications that we saw would be helpful, and to encourage teachers to really take the time to go through the process before they brought a student up to the meeting. We were given a little bit of building time for training that we would take the first ten minutes of our professional development to talk to our staff about what does 2E mean, what does it look like, here's our new process. (Interview, March 27, 2017)

The School 2 Teacher A also said, “We were always given of course a time to have substitutes or to go to the training” (Interview, March 27, 2017). The Hope

Administrator B’s account verified the importance of built-in time and budget for purchasing substitute teachers:

I think making the time, the designated time to pull our group in as a cohort to work together, and I think that was the biggest benefit, and the biggest influence was to be able to pay for their sub and bring them in to work together. (Interview, April 5, 2017)

Even though it was the third year of the 2E Project (i.e., 2016–2017 school year), the Hope District still paid for substitute teachers for 2E Project cohort members to attend cohort meetings. The School 2 Teacher B had this statement:

We have one meeting this year (i.e., 2017). . . . They did pay a half-time sub, which was very nice, and that was to regroup. (School 2 Teacher B, Interview, April 17, 2017)

One thing worth mentioning is that time was also given in schools for the 2E cohort members to promote the mini-modules.

They did give time for staff development, a little bit. (School 2 Teacher B, Interview, April 17, 2017)

We asked for five to ten minutes at every meeting and we got four. . . . They [principals] were pretty supportive. They understand and we have a very limited time and they have to get everything in so that's part of it too so I do understand that. (School 3 Learning Specialist, Interview, March 24, 2017)

The biggest factor for success was that our administration supported it and they gave us the time. . . . The biggest one is the support of giving us time for staff development. (School 4 Learning Specialist, Interview, March 22, 2017)

Themes Related to Research

Question 3

Based on the 2E cohort's observations and perceptions, the 2E Project's impact on 2E students' learning consisted of improved student performance in the academic and affective domains (Theme E). When discussing student learning outcomes, the 2E cohort also expressed difficulties in measuring the impact of the 2E Project on student learning outcomes (Theme F).

Improved performance: academic outcomes. After reading a prompt about student academic outcomes (outcomes that reflect students' successful progression through the education system), the School 2 Teacher B described a case study she completed during her training:

I was able to [complete a case study] because I had a student . . . it was ADHD that was able to be identified and get on a 504 plan with the help of doing the twice exceptional model process. She's now in fourth grade this year [2016–2017 school year], so it did work. That's good. She went all the way through. (Interview, April 17, 2017)

The School 3 Learning Specialist considered test scores as indicators of student growth:

We haven't really done this enough to show a ton of growth but the two pieces of data I can point to would be just performance in the classroom. I've been thinking of at least one student identified this year and then also the student I did my case study on, we saw significant growth. Then the other one would be that their NWEA MAPs test. The reading and math tests on that area, we've seen some good growth there as well. (Interview, March 24, 2017)

Improved performance: affective outcomes. Teachers mentioned a positive impact that strength-based interventions had on their 2E students.

For this particular student, it changed the way he saw himself. Because prior to having that 2E identification, he was a struggling reader, an ESL student, so he had real setbacks in language and just didn't feel confident in who he was and what he was doing. After somebody noticing and realizing the strengths and how amazing, like oh my gosh, you have this, and look at how great you're doing at this and really building up that positive, his weaknesses didn't seem so weak. He had a confidence in himself, like I am good at something and I can do this. It goes back to that strength-based programming, really building the positives in a student. (School 1 Teacher, Interview, April 7, 2017)

The School 2 Teacher A described how a strength-based approach changed her practice in ways that changed a student's perception about himself:

We saw a lot of [behavioral] improvements when we took the time to really discuss with the student their strengths and to let them know they were just going to also get to focus on their strength and what we can do to keep increasing that. I just saw a kid smiling for the first time, and they're like, "Oh, you're not here just to tell me what I'm bad at."

He went from not being able to socialize very well to standing up in front of the class and being a leader and teaching his peers. (Interview, March 27, 2017)

The School 2 Teachers A also mentioned positive changes in parent-teacher interaction and student behaviors:

I think one of the things that we talked about was how much smoother and better the parent meetings went.

We definitely saw improved behaviors. . . . We've found kids less behavior issues, so it was really positive. (Interview, March 27, 2017)

Difficulty in measuring impact. When asked about observed changes regarding student growth, the School 2 Teacher A said:

I would say I don't know about academic growth, if I actually had time to completely track that, but I would say behavior. . . . I don't know specific academic success with it because I don't have any necessarily great pre- and post-test information. (Interview, March 27, 2017)

The School 2 Teacher A observed some behavioral changes. The researcher asked a follow-up question about documentations of student records. She replied:

We did [document]. On part of that paperwork [framework] we would discuss that. There was a follow-up that we always did, and part of that would be documented. I don't know how well they're still doing that, but we did want to note that. (Interview, March 27, 2017)

The student that she mentioned was the one previously mentioned who transitioned from being unable to socialize to leading the class:

We did put that in the notes, and when we had our follow-up meetings we had all that information to show what worked and possibly what didn't work. (Interview, March 27, 2017)

The School 2 Teacher B said she documented student growth but no specific information was provided—"I do. I do. We do written response things. Anything we're doing where it's videoed or anything like that. When it comes to as an educator what you're evaluated on, it really comes down to MAPs right now" (Interview, April 17, 2017). The Hope Administrator B commented on anecdotal evidence: "Our main source of feedback was from the participants specifically, so they brought the feedback from their schools" (Interview, April 5, 2017). Relying on feedback from training participants, State

Administrator A further explained the reason for including teacher perceptions and behaviors in evaluating the effects of the 2E Project:

I would love to say that we could take student achievement and directly to cause and effect, our training equals improved student achievement but as you know, that's very difficult. . . . Many variables that go into making up student achievement. So, what we looked at mostly was teacher behaviors and teacher perceptions.

I thought a whole lot about evaluation tools and like most things in education, it's terribly hard to measure. (Interview, May 5, 2017)

Approaches to documentation varied from school to school. School 1 Teacher said, “We had that paper trail to push forward. We have the ability in our building because we are K-8 to share that knowledge as we go” (Interview, April 7, 2017)

In terms of measuring functional outcomes (i.e., skills that are not considered academic or related to a student’s academic achievement), the Hope Learning Specialist said, “I think that we are in desperate need of something that shows us that are indicators of functional outcomes, because we do see now that our kids need this, but we have not figured out how to do that” (Interview, April 19, 2017). Regarding social and behavioral competencies, the School 1 Teacher paused for a while and said, “I don’t know” (Interview, April 7, 2017).

The School 2 Teacher B had an opinion about using test scores as indicators of academic growth. She proposed adopting different indicators:

But my class doesn't necessarily show all the growth on MAPs, because when they're 98, 99%, and I get in trouble for my maps on a regular basis. [long pause] Maybe completion of tasks. Because a lot of times they don't complete things. Completion of tasks and then [long pause] involved in their learning . . . (and) higher level of engagement. (Interview, April 17, 2017)

Some 2E cohort members were unable to talk about student growth due to their indirect roles in supporting classroom teachers. The Hope Learning Specialist said, “I just

don't know what happens on that level [2E students in schools] . . . I don't know what happens in the classroom” (Interview, April 19, 2017). The School 4 Learning Specialist had the same experience:

I don't know that I'm going to have much on this one [talking about student growth] because I deal more with the students only who have disabilities. And we only have two twice-exceptional students in the building, so I just haven't had a lot of contact to know how they're doing. I know they're doing very well, but you know as far as specifics, I couldn't tell you. (Interview, March 22, 2017)

Administrators at the CDE were asked about their knowledge of the 2E Project's impact on 2E students' learning. The State Administrator A responded to this question, to what extent were you able to observe in project schools: “Very little. Very little. That really is not something that CDE really wants you to do even because that's consultant stuff and they don't really want you to be a consultant. . . . So, we didn't do much of that and we deliberately tried to avoid it” (Interview, May 5, 2017). The State Administrator B said, “None yet. . . . It's just that there's a lot of red tape you've gotta cut through to get to that level, and so in most places it sounds like the director has to set it up (for school visits)” (Interview, May 12, 2017).

The 2E cohort participants proposed some indicators that would tell them a 2E student is making progress in academic and non-academic domains. *Feeling positive* was a predominant indicator.

For those 2E students, that their needs are being met and they're feeling safe and they're feeling challenged but also getting the support they need to be successful. . . . When they start to feel positive and feel some success even in the smallest areas, they're going to show it, and it's going to show across the board. (School 1 Teacher, Interview, April 7, 2017)

I think if they have less time going to the office for behavior. . . . If a student feels good about themselves and about what they're learning, the teacher understands how to work with them, then they're going to show their growth and they're going

to feel positive and want to go to school. (School 2 Teacher B, Interview, April 17, 2017)

In response to “success progress” in the prompt, the Hope Learning Specialist thought possible indicators would be “a lower dropout rate and higher graduation rate” (Interview, April 19, 2017). The School 3 Learning Specialist shared a similar perspective:

I would say that they're making adequate progress on their goals, that they are growing at an appropriate rate and that when I say growing that's not necessarily just academic. It could also be behavioral as well. It could be maturity. . . . From my perspective, it's mainly the IEP because of just where I'm teaching. Again, I wish it was more at the ALP level [Advanced Learning Plan]. (Interview, March 24, 2017)

The School 4 Learning Specialist also mentioned that an ALP would serve as one measurement of student growth.

To demonstrate the 2E Project’s impact on 2E student learning, the School 4 Learning Specialist proposed a pre- and post-test design for program evaluation. The State Administrator A proposed year-long multiple case studies on 2E students.

Themes Related to Research Question 4

As a result of the 2E Project, school- or district-level changes were predominately related to improved school culture (Theme G). When talking about the changes they observed, the 2E cohort also made suggestions about how the Hope District and CDE could improve the 2E Project. Their suggestions became Theme H: Planning for the future.

Improved school culture. The improved school culture was heavily related to the mini-modules, an initiative that the 2E cohort had in their second year of the training. As the School 4 Learning Specialist pointed out, “Our goal was to create awareness, so

teachers would be able to recognize when they have these students in their classes and be able to meet their needs better” (Interview, March 22, 2017). The 2E cohort wanted to see school-level changes in rising awareness of twice exceptionality; they had these reports:

People are using the term more. (Hope Learning Specialist, Interview, April 19, 2017)

I feel like now they know more aware. . . . I feel like last year [2016], a couple staff members did go to the RtI process after the meeting. [After mini-modules were demonstrated] (School 2 Teacher B, Interview, April 17, 2017)

At the very least now we do occasionally. . . you might hear it instead of, "Oh, I think we might have a student who is twice exceptional." You actually do hear that now so that's good because that means awareness has kicked in, in my opinion. . . . I think it's just much more school wide personality right now. It's a big culture shift so that's good. (School 3 Learning Specialist, Interview, March 24, 2017)

So, we did a lot of reviews, so we were always building on prior knowledge form from the month before so that staff was getting that sense of like, "Oh, I'm getting it," you know, "I'm learning this, I'm remembering this." And that was actually two years ago that we did that.

I just had a teacher, it was just last week [this happened in Spring 2017], and she has been incorporating a variety . . . like a menu, a menu of choices for students to demonstrate their learning based on their learning style or multiple intelligence. And that was one of the trainings that we did. (School 4 Learning Specialist, Interview, March 22, 2017)

The Hope Administrator A had this observation regarding a potential change at the district level:

I think the biggest one was the attitudes. The professional development that we focused on was a lot of, kind of consciousness raising. . . . In terms of the referrals process, I think what it did in general is . . . strengthened each of those schools' MTSS processes in general. . . . I think they were able to bring that broader strength-based approach to MTSS staffings for all students, and not just potential twice exceptional students. . . . I think the spill-over effect is very powerful. (Interview, March 13, 2017)

Planning for the future. To sustain the impact of the 2E Project, the Hope District needed guidance from the state department of education. Having worked with

multiple administrative units on the 2E Project, the State Administrator A recognized their need for the state office's ongoing support—"I felt like the districts that were the most involved, they wanted us to come back again" (Interview, Mary 5, 2017)

That was actually two years ago that we did that. [i.e., mini-modules] So since then, you know we haven't done like direct instruction. You know kind of because the cohort needs to come up with, "Okay, what's next? Now that you've done the mini modules, what's next?" (School 4 Learning Specialist, Interview, March 22, 2017)

We didn't meet that much this year [2016–2017 school year], because we didn't really have next steps in mind. . . . We don't have a specific target right now, it's just kind of we're thinking about things, and then we'll meet with [State Administrator B] again in the fall, and see what she comes up with too to support us. (Hope Administrator B, Interview, April 5, 2017)

The State Administrator B indicated that, in the 2016–2017 school year, the CDE was working with five or six administrative units on the 2E Project and those AUs were “still really holding their own as best they can” (Interview, May 12, 2017). Together, the CDE and AUs were working on a possible Level 3 training, but they have not figured it out yet, according to the State Administrator B.

The 2E cohort members had several ideas for Level 3 training. First, the 2E cohort wanted to have more involvement in the RtI/MTSS process:

I would think that there would be more of us so we can be involved in that whole RtI/MTSS piece of our system, that there'd be a representative on that team of people who helps everyone understand what it means to qualify for 2E. . . . Be involved from the beginning of the process. (Hope Learning Specialist, Interview, April 19, 2017)

The RtI process, especially the RtI process with gifted kids and twice exceptional kids, just getting solid procedures in places for different schools. (School 1 Teacher, Interview, April 7, 2017)

[long pause] I mean, we do have strategies, but I think if we had maybe more explicit best practice strategies from CDE. (Hope Administrator B, Interview, April 5, 2017)

The State Administrator B said she had heard of teachers wanting to know about tier-two and tier-three interventions. Apparently, the demand to go beyond universal-level interventions existed not only in the Hope District.

A suggested second Level 3 topic was legislation. The School 3 Learning Specialist said, “It would be interesting to do a level three or another level of training maybe another case study or maybe looking at things through legislation or something a little higher. I think legislation might actually a good area there” (Interview, March 24, 2017). The State Administrator B echoed that idea—“I’ve heard that a few times” (Interview, April 5, 2017).

A suggested third Level 3 topic was special populations. Facing a new student population in her new school, the School 2 Teacher A suggested expanding the scope of the training: “I just think people need refreshers to see how it's working in their different grades or different populations, different administration” (Interview, March 27, 2017). Her new challenge was English learners and students from low-income households. The Hope Learning Specialist was interested in “students who are staffed into special education first” (i.e., students who are first identified in special education) (Interview, April 19, 2017). The School 2 Teacher B personally wanted to learn more about gifted students with Asperger’s syndrome. The School 2 School Psychologist mentioned executive function; she was interested in gifted students with ADHD or with ASD.

Establishing a list of educators who participated in Levels 1 and 2 and sharing that information could benefit many other schools in the Hope District. A few members in the original 2E cohort changed schools after the 2014–2016 period, according to the Hope

Administrator B. Not only school teachers, but also administrators in the Hope District and the CDE left their jobs. Several research participants recognized this challenge:

Now this year, I heard most of them left [School 2], so when I did speak with a provider recently, I couldn't come up with anyone's name that was still there that she knew, which was really unfortunate.

I think there's not a lot of administrative support. When we had [Hope Administrator A], we had support. [Hope Administrator B] is a great, fantastic support, but she can only do so much, and I don't know who our new GT director. (Hope Learning Specialist, Interview, April 19, 2017)

[Hope Administrator B] has been there, and she's great at answering questions and building that support for us, but she's also having to catch up to speed the new coordinator.

Hopefully, [Hope Administrator B] and this new coordinator can really pick up speed on this again so that we can get some stronger things in place, some education district-wide instead of limited to that cohort. (School 1 Teacher, Interview, April 7, 2017)

We had quite a big showing, but now, most of those teachers have moved on to other schools. . . . This year, it's been me only. (School 2 Teacher B, Interview, April 17, 2017)

Now of course the team is now down to two of us. (School 3 Learning Specialist, Interview, March 24, 2017)

The State Administrator B described how leadership affected an administrative unit's involvement in the 2E Project: "Other people said things like, 'We've had big leadership change. We've had initiative change. We kind of lost our momentum, and I'm sorry. [We will not commit to the 2E Project]'" (Interview, May 12, 2017). While personnel changes are inevitable, making the network available is likely to increase the sphere of the 2E Project's impact. The School 2 School Psychologist said:

"I'm very appreciative knowing that there's other colleagues in the district who are going through it. I think that's great. I think it's got to be kind of a grassroots effort to put people in schools who can then be advocates for those students. (Interview, April 5, 2017)

The School 2 Teacher A switched to a new school. She said:

I think being at a new building also, I would love to know if there's anybody in my building who went through the 2E training, and what is my school doing about it, and is it part of the process. I don't know any of that yet. (Interview, March 27, 2017)

Creating a network is also likely to encourage other educators to join the 2E cohort. The School 4 Learning Specialist had this comment:

I think more guidance from the district as far as what we're supposed to be doing with this knowledge. . . . [Hope Administrator B] was thinking about setting the expectation that if you do take these classes, and I think they're free aren't they, through CDE, that then there is the expectation that you will join the cohorts and continue the work with the cohorts. (Interview, March 22, 2017)

The State Administrator A pointed out that, in order to make changes effectively, “you have to change things from the bottom up and from the top down” (Interview, May 5, 2017). The bottom-up approach is training for educators, and the top-down approach is to gain administrators’ buy-in. The School 4 Learning Specialist had a similar perspective:

Possibly having that administrator talk to go with their 2E project . . . and talk to the principals about how having their staff be aware of this benefits the students in their school and try to get more principals on board with providing that time for the cohort members to do these little mini-modules and create the awareness. (Interview, March 24, 2017)

The 2E cohort called for strong leadership in the Hope District to promote twice exceptionality:

Maybe [new GT director] will drive the movement forward, but we always need somebody above telling us this is important, and I want you to spend time on this for it to happen. (Hope Learning Specialist, Interview, April 19, 2017)

It'd be great if the district could allow one day a month or one meeting every two months or whatever it is. If they want it to be important, they have to give us that time or build it into our professional development time. (School 2 Teacher A, Interview, March 27, 2017)

Going above administration, there needs to be district support. Where the district is, you know, really encouraging principals to make the time to do this [mini-

modules]. It's important. (School 4 Learning Specialist, Interview, March 22, 2017)

The 2E cohort members also suggested having designated persons to serve 2E students:

If we had a 2E representative that was in buildings . . . an instructional specialist that was out supporting teachers who was supporting and identifying and supporting the staff around twice exceptional students . . . if we had the manpower to support teachers in a different way, I think that would be really good. (Hope Learning Specialist, Interview, April 19, 2017)

I think if we had additional funding we could actually have someone in a district dedicated to these students, things like that would be very helpful. I think we need a gifted and talented person who does what I do for special [education]. We need someone who that is their full-time job. (School 3 Learning Specialist, Interview, March 24, 2017)

Recruiting new cohort members seems necessary. The School 1 Teacher A expressed her concern by saying, "I also think our cohort was kind of small. We weren't getting any new ideas as we went forward" (Interview, April 7, 2017). The Hope Administrator B was positive about the growing interest in the district:

The new group saw the work and they were like, "Wow, we didn't even know this was going on, or the extent of what you guys have created, and this is awesome, and we want to be a part of it," and then the old team was like, "Yeah, what more ideas do you have? What can we do more?" So, it was really nice. (Interview, April 5, 2017)

Changes can take place beyond the school or district level. The Hope Learning Specialist recalled people sharing resources when developing the RtI/MTSS framework:

Everybody is sharing documents, even from Boulder Valley, even from neighboring districts. People are sharing all those documents and PowerPoint. I think that is a fantastic resource. (Interview, April 19, 2017)

The State Administrator A mentioned the potential power of networking among school districts:

That's another thing that you could do at CDE is you could take whatever different districts did and then, you could share it with all the others and that's another way that you can get people excited. (Interview, May 5, 2017)

The case study assignment was an integral part of the 2E Project. Because of the assignment, the cohort members were able to collaborate with their colleagues, including identifying students and developing strength-based interventions to solve real-world issues. The School 2 Teacher A had this observation:

I think sometimes if we were trying to look for a very specific twice exceptional student and we didn't have one, that was difficult, like if somebody just had to pretend if they didn't know they had a twice exceptional kid or they didn't really see that they had a twice exceptional student. (Interview, March 27, 2017)

The School 4 Learning Specialist offered this solution:

[M]y suggestion would be to have an alternate assignment instead of the case study for people that the case study just doesn't work for them. . . . And so there needs to be another way around, so people can still complete the class. (Interview, March 22, 2017)

The School 3 Learning Specialist thought of the access to 2E services in other types of schools. He said:

Public schools, we're usually more aware of these kinds of things but there are charter schools and private schools that might not have the connections and so getting it so that every child no matter what their chosen education path is has these opportunities is extremely important. (Interview, March 24, 2017)

The 2E Project was not perceived as a one-time event in the Hope District. People who were involved in the project, from cohort members to administrators in the Hope District and CDE, considered follow-ups necessary to sustain the work.

I think the cohort section started to get a little bit disjointed. I just felt like time in between meetings was too large, and we started to lose steam. (School 1 Teacher, Interview, April 7, 2017)

I think what's lacking is the follow-up and making sure that it's still happening with the administration. (School 2 Teacher A, Interview, March 27, 2017)

I would just love more opportunity to meet as a group. That face time is really important. And I know that's hard. I know that's the hardest part, but that has been very valuable. (School 2 School Psychologist, Interview, April 5, 2017)

The School 2 Teacher A suggested providing multiple ways of communication:

It's just always hard as a teacher to find time to miss school to attend meetings. . . . Especially at the school I'm at now, it's really hard to get a substitute teacher [a new school rather than School 2]. Maybe more follow-up just via email or Google Documents or whatever shared drive versus having to get together face to face just to continue the conversation. (Interview, March 27, 2017)

The Hope Administrator B recognized the timing to hold meetings did not work for everyone, so she kept educators informed by making resources available.

April and May are very strange months for teachers. We won't be having a meeting with our project until the fall, but again, we have the professional development that'll continue to offer. We have, of course, the CDE offerings, but then we have a GT Ignite subscription, where they can take online courses of choice. So, a lot of times before summer, I try to put out these things are available if you are someone who wants to do these things over the summer. (Interview, April 5, 2017)

In terms of the resources that the 2E cohort created, the School 1 Teacher A was not sure that they are available to the public.

Right now, I don't even know that I would be able to locate all of the resources. I know they're on Google Drive, and I have to search for them, but they're not accessible. Whereas if we had it on the district GT webpage or something, even so that we could direct teachers there, like here, we talked about this, I want you to go watch this mini-module. (Interview, April 7, 2017)

To make a greater impact than before, the State Administrators A and B provided their insights, including (a) recognizing administrative units' need for ongoing support, (b) building regional networks with educators in special education, (c) developing a solid plan for program evaluation, (d) providing targeted, customized assistance.

We built their capacity but at the same time, you can't take away all of the support because they still need someone else to help them.

That's an issue because I felt like that was something we didn't really get a good handle on yet... in five more years, there would have been time to go back and follow up with those districts and say, "Now, what do you need?"

You could go in each time and have a different target group. (State Administrator A, Interview, May 5, 2017)

The State Administrator B verified AUs' need for ongoing support:

That's the feeling I was getting, is this is a waste of time because there's no continued support from CDE, and I guess that's the way CDE used to kind of operate, is we would go in, we would offer this, and then you're kind of on your own, and now they don't want it to be that way because they realize that it's constantly changing. (Interview, May 12, 2017)

The State Administrator A talked about strategies to expand the 2E Project's impact:

I felt like one thing I would have liked to do would be to get myself on the agenda at special [education] directors' meetings. . . . I think you need to use that network more and use the regional network for special [education] more, like it would have been good if my 2E team members could have gone to these regional meetings and just be part of them. . . . If I wanted to see some modifications in the project, I would say be very clear about what your goals are, your mission and your vision and your goals and do some real, careful goal and objective setting, and then, think very carefully about how to evaluate whether you're achieving your goals or not. . . . I would like to see it continually monitored and adapted to changing situations. (State Administrator A, Interview, May 12, 2017)

Responding to the new Commissioner's call to offer targeted, customized assistance to administrative units, the State Administrator B started revamping the 2E Project in 2016.

This year [2016–2017] the current goal was to revise all the modules with updated research to begin to look at maybe why people weren't signing up to take the courses anymore was just that enrollment was going down. . . . Right now, we're still working through the changes. . . . Next year [2017–2018], we'll roll out the new Level 1 with every class that's taught with some of the feedback which we're going to implement. . . . So, I've been talking to [University] about building this into a graduate-level course so they can earn credit for their time. . . . The PLC [professional learning community] will be a yearlong professional development group effort collaboration involving webinars and a little bit of face to face, but then the teachers will be able to design their own outcome. . . . I think it needs to be point of entry, meeting whoever is coming to you at their point of entry. . . . I would [visit schools], and I have permission to do that, so it's just a matter of making it a purposeful visit and then how would that look. . . . School-based visits weren't part of the original project. . . . We can't lose our footing. I told the ladies

that we need to be on two-to-three-year evolution of updating and revamping and looking for what's the next best thing. (Interview, May 12, 2017)

In the past, according to the State Administrator A—“[CDE] want(s) us to be in an advisory and a training capacity and that sort of thing for support, but you can't really go in as a consultant on an individual basis. So, we didn't do much of that and we deliberately tried to avoid [school visit]” (Interview, May 5, 2017). The rising demand for customized professional learning may push the CDE to adopt different modes of training.

The State Administrator B said:

I've made sure to write some of that language in the very beginning, like, these are the levels of support that we'll offer to you, one-on-one collaboration, in-classroom collaboration, site-based collaboration, whatever, and so some of the people are excited about that. We just haven't gotten there yet. (Interview, May 12, 2017)

Summary

With regard to the first research question about 2E participants' experiences serving 2E students before, during, and after the 2E Project Training, increased knowledge and skills and evolved attitudes were found. The 2E participants increased their competences in identifying 2E students and implementing strength-based interventions; they also became resourceful in terms of supporting other teachers. The 2E participants affirmed the worth of the two-year 2E Project, and they were eager to continue their work to improve 2E services. The 2E participants demonstrated a good alignment between their personal and professional goals. The 2E participants also reported recurring challenges they faced throughout the training: competing interests, limited time, and an un-unified RtI/MTSS framework.

For the second research question about the 2E educational services the 2E cohort developed and implemented, the utilization of a team approach was found in

identification and instructional practices. The 2E participants who had direct access to 2E students reported working with the problem-solving teams in their schools and/or providing adaptations in classrooms. Other aspects of the 2E Project were noted in ways that facilitated those educational services, including hands-on learning activities, supportive administrators, and built-in hours for collaboration.

For the third research question about the perceived impact of the 2E Project on 2E students, improved academic and affective outcomes were noted, including successful progression of students through the education system, increase achievement test scores, improved self-confidence, and decreased problem behaviors. However, many 2E participants as well as administrators interviewed expressed difficulties in measuring the impact of the current 2E Project on students' learning. Finally, for the fourth research question about school- or district-level changes, improved school culture was observed. The 2E participants reported hearing colleagues using the term, twice-exceptional, more often. The 2E participants also made several suggestions for the CDE and Hope District regarding sustaining the 2E Project. Based on the findings, a logic model of the 2014–2016 2E Project in the Hope District was developed (see Table 23).

Table 23

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

CHAPTER V

DISCUSSION

There is hope.—Me

The primary purpose of this evaluation study was to understand the implementation of the Twice-Exceptional Project Training in the Hope District in Colorado. The following research questions guided this exploration:

- Q1 What were participants' experiences serving 2E students before, during, and after the 2E Project Training?
- Q2 How have participants developed and implemented educational services for 2E students?
- Q3 What are participants' perceptions of the 2E Project's impact on 2E students' learning?
- Q4 What were school- or district-level changes that resulted from the 2E Project?

The 2E Project in the Hope District started in 2014 and continued through 2016. Several educators in the District took Levels 1 and 2 training with the Colorado Department of Education; however, not all of the trainees joined the 2E cohort and stayed through the second year of the 2E Project (i.e., 2015–2016 school year). Administrators of the four pilot schools collaborated with the Hope District supporting the two-year initiative. Educators from those pilot schools were core members of the 2E cohort; they were given time to go to the training and follow-up meetings. The second-year onsite professional learning for the 2E cohort was to create and implement the 2E MTSS Tier 1

Framework and mini-modules. The 2E participants were interviewed in Spring 2017. They reflected on their 2E Project experiences and expressed their desire to sustain the 2E Project.

Colorado is the only state in the United States where a series of onsite, long-term twice-exceptional professional learning have taken place in multiple administrative units. Yet, the Colorado Department of Education and its partner administrative units have not systematically evaluated their two-year initiatives. This current study explored the educator outcomes, student outcomes, and organizational support and changes perceived by the 2E Project participants. The findings of this study suggest promising educator outcomes, student outcomes, and organizational changes occurred in the Hope District as a result of the 2E Project Training. A discussion of the findings of this study follows.

Discussion/Addressing the Research Questions

Research Question 1

Reflecting on their 2E Project experiences, the 2E participants reported that their knowledge and skills related to identifying and serving 2E students increased as a result of the training they received. They not only became aware of 2E students' characteristics, but also when a potential 2E student case was brought up by other educators, the 2E participants were able to help determine whether or not the student case was twice-exceptional. The 2E definition by the National 2E CoP states that 2E individuals' exceptional ability may dominate their disability; their disability may dominate their exceptional ability; or "each may mask the other so that neither is recognized or addressed" (Baldwin, Baum et al., 2015, p. 212). The 2E participants' testimony

indicated that being able to accurately identify 2E students was key to providing appropriate educational services.

The 2E Project participants also reported increased knowledge and skills in developing strength-based interventions. The case study assignment played a huge role in terms of providing opportunities for educators to apply what they had learned from Levels 1 and 2. Throughout the 2E Project, trainees discussed their case study assignments with one another and with facilitators. In the second year, the 2E participants collaborated on the MTSS framework and mini-modules and shared updates at follow-up meetings. The 2E participants were able to build a support network with one another because of the cohort structure that the Colorado Department of Education (CDE) and the Hope District set up intentionally.

Several effective professional learning characteristics were also indirectly noted by the participants. Professional learning during the 2E Project was non-traditional and was longer in duration than typical professional development opportunities. Further, it required collective participation, active learning, and coherent alignment. (Darling-Hammond et al., 2009; Garet et al., 1999; Garet et al., 2001; Jaquith et al., 2010; Yoon et al., 2007). First, non-traditional types of professional learning activities were featured in the 2E Project, such as a book study, case study assignments, and role-playing. Second, the 2E Project was sustained over two years supporting educators' active learning. Third, the CDE and Hope District were committed to the formation of collective participation that allowed educators to learn from and collaborate with other trainees from the same school. The formation of the 2E cohort also reinforced participants' work engagement toward the betterment of the Hope District. Fourth, the 2E participants promoted changes

in practice at their schools and met regularly as part of their active learning. They also met regularly to discuss their assignments for the project. Fifth, the 2E Project was aligned with the needs of the four pilot schools. According to the Hope Administrators, those pilot schools tended to bring up more potential twice-exceptional cases than other schools. The building leaders definitely wanted to address twice exceptionality, otherwise they would not join “the coalition of the willing.” There was an alignment between 2E participants’ personal and professional goals as well. They thought the training was fulfilling and satisfying. They were eager to learn and eager to share with others their knowledge and skills. The School 1 Teacher and School 4 Learning Specialist took the 2E Training because they became gifted education coordinators and they wanted to increase their competence in gifted education. The School 3 Learning Specialist changed his role from a general education teacher to a learning specialist because he found passion in serving students with exceptionalities.

The *Every Student Succeeds Act* also states that professional development activities should be “sustained (not stand-alone, 1-day, or short term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused” (P.L. 114–95 §8002 (42)). The Level 1 training was intensive, according to the Hope Administrator A, who audited that course. The 2E Project was sustained and collaborative over the course of two years and can serve as a model for other professional learning programs with similar goals and objectives.

Some educators and administrators that were interviewed expressed that the 2E student population rarely was a district’s priority due to the number of identified students being quite small. Nevertheless, the CDE’s adoption of the problem-solving approach to

serving 2E students within the MTSS emphasized the importance of serving 2E students and the obligation of schools to serve every student.

The fact that twice exceptionality was not a priority made educators and administrators hesitant or reluctant to spend time on the 2E Project. The State Administrators mentioned why some school districts withdrew their commitment. Time conflict was inevitable in this two-year initiative. The School 2 Teacher A, who became more unavailable for follow-up meetings, proposed multiple ways of communication to help those who missed meetings stay connected. The School 2 Psychologist and School 4 Learning Specialist did not complete Level 2 training because the Level 2 training was offered twice a year and they happened to have time conflicts.

Research Question 2

The second year of the 2E Project was a time for trainees to develop and implement projects in response to the needs in their schools as well as the Hope District. The 2E cohort created the *2E MTSS Tier 1 Framework* and mini-modules. The former was used to improve the identification practice of 2E students within the Multi-Tiered System of Supports, and the latter was used to raise the awareness of twice exceptionality among educators. Addressing the second research question of this study revealed how the 2E participants developed and implemented *2E MTSS Tier 1 Framework*.

By utilizing a team approach, the School 1 Teacher learned from and collaborated with her colleagues from the same school during the training. That was an advantage of collective participation, one of the effective PD structural features (Desimone, 2009; Garet et al., 1999). The School 2 Teacher B and School 3 Learning Specialist were the only two participants that reported working with the intervention teams in their schools to

identify 2E students. Their involvement with the intervention teams most likely led to a wider impact on the identification practices in their schools than working individually with teachers when individual cases were brought to their attention.

Collaboration with professionals with different expertise is vital to serving 2E students since these students have varied levels of special needs. The 2E participants appreciated working with people from the same school as well as working toward improving the 2E services in the Hope District with trainees from different schools. The 2E participants' experiences suggested that the collective participation in the 2E Project facilitated the utilization of a team approach which is documented best practice for supporting twice-exceptional students (Coleman & Gallagher, 2015).

Not every 2E participant had the opportunity to provide direct instruction to 2E students. Depending on their roles, the 2E participants were involved in 2E students' school lives at different stages or levels (i.e., identification process, Advanced Learning Plan management, case study assignments). The School 1 Teacher A trained her colleagues to write SMART goals in order to better serve students. The Hope Learning Specialist provided training to new special education providers. The education services to 2E students were made both directly and indirectly.

Considering the MTSS framework and mini-modules created in the second year of the 2E Project, the 2E cohort focused on improving the identification practice and on raising their school's awareness of twice exceptionality. The 2E Project participants demonstrated their use of new knowledge and skills by creating the MTSS framework and mini-modules. Had the 2E Project participants demonstrated their learning by developing and implementing interventions following the identification of 2E students, it

would have been possible to investigate the effects of the training at deeper levels (i.e., intervention effectiveness and student learning outcomes). However, the 2E Project was not equipped to measure impact on student learning as the focus of the Project's first two years were on improving identification practices and raising awareness.

The intention to investigate what teachers had done in classrooms in order to yield positive student outcomes came from Guskey's PD evaluation framework— to “determine what instructional practices and policies will most effectively and efficiently produce the desired goals” (Guskey, 2003, p. 29). The “desired goals” used in the PD evaluation framework mean “the student learning goals you want to achieve” (Guskey, 2003, p. 29). In other words, making positive changes related to student outcomes is presumably the ultimate goal of a professional learning activity. Since the purpose of the 2E Project was to “build capacity in districts to recognize and meet the needs of twice-exceptional students” (PowerPoint: CDE 2E Project Introduction) and the primary accomplishments of the 2E cohort consisted of mini-modules and applying the MTSS framework, it is reasonable to say that it is too early to determine which instructional practices and policies most effectively and efficiently produced positive student outcomes. The next step for the 2E Project in the Hope District would be to create and implement services for 2E students once students are identified. Deliberate documentation is necessary support meaningful evaluations of educators' use of new knowledge and skills in classrooms (level four) and student learning outcomes (level five) (Guskey, 2000).

Although little information was provided to help understand identification practices and classroom instruction, interview participants reported several necessary

conditions that supported the success of the 2E Project and its outcomes (i.e., case study assignments, mini-modules, and the MTSS framework) including the following: (a) passion for helping 2E students; (b) hands-on activities that were relevant to their work in schools; and (c) supportive administrators who were committed to providing time, resources, and any forms of intangible support, including built-in professional learning hours, substitute teachers, re-energizing book study, positive attitudes, and the sense of togetherness (i.e., taking the training together). Surprisingly, educators' passion for students and the intangible support from administrators are consistently absent from many published pieces concerning effective PD characteristics (e.g., Desimone, 2011; Desimone et al., 2002; Garet et al., 2001).

Research Question 3

The two types of student outcomes discussed by research participants in this study were academic outcomes and social and behavioral competencies:

Student academic outcomes: Outcomes that reflect students' successful progression through the education system.

Social and behavioral competencies: Social skills, attitudes, and behaviors that may be important to students' academic and post-academic success. (IES, 2016, p. 133)

As a result of the 2E Project, success indicators of 2E students' academic outcomes were progression through the education system and achievement test scores reported by interview participants. The indicators of students' affective outcomes were self-confidence and students' perceptions of themselves as reported by the participants in this study.

Because the 2E Project in the Hope District was not set up to document which instructional practices and policies impacted student outcomes, measures of the 2E

Project's impact on 2E students' learning were absent. Additionally, with the exception of case study assignments, the 2E participants had either direct or indirect contact with 2E students depending on their roles; this limited their observation of student growth. Further, the State Administrators had no opportunities to observe students or teachers because school visits were not part of the 2E Project. Again, this indicated that the main focuses of the 2014–2016 2E Project in the Hope District were identification practices (i.e., the MTSS framework) and educator awareness (i.e., mini-modules), not instructional interventions in classrooms and measurement of student outcomes.

In the future, efforts are needed to make the 2E Project more data-driven and classroom-focused. The State and Hope Administrators who were involved in the 2E Project relied on anecdotal reports, case study assignments, and perception surveys to determine educator outcomes which included changes in knowledge, skills, and attitudes. The 2E Project was not professional learning connected to specific content areas; therefore, an effective PD core feature, content focus, was not identified in this study. It should be noted that previous studies on professional learning focused on student outcomes in reading, mathematics or science (e.g., Garet et al., 1999, 2008, 2011). A common strategy to determine impact on student learning in these studies was to use achievement test scores as indicators of the effectiveness of interventions provided. Given the lack of content area focus in the 2E project, this method would not be appropriate to determine impact on student learning.

Research Question 4

Organizational support and changes need to be in place for instructional practices and policies to be implemented. In this study, this was represented by the schools' and district's advocacy, accommodation, facilitation, and recognition of twice exceptionality (Guskey, 2000, 2003). The participants in this study (i.e., Hope Administrators and educators) overwhelmingly reported improved school culture. Keeping in mind the two focuses of the Hope District's 2E Project—strengthening the identification practice and raising the awareness—the improved school culture may be considered the foundation for new instructional practices and policies that will take place in the near future.

Looking ahead, the 2E participants had high expectations for the Colorado Department of Education and Hope District to sustain the 2E Project. They made suggestions for administrators to support professional development training (see Table 24). Unfortunately, what was mentioned by the State Administrators and absent in the Hope District was a plan for program evaluation. Developing an evaluation plan might help improve and sustain the 2E Project. Further, personnel changes in the 2E cohort and Hope District could impact sustainability. Several 2E participants actually expressed desire for recognition of the 2E Project from new leadership as well as clear guidance from the Colorado Department of Education on the next step after the completion of the 2E Project Training.

Table 24

Suggestions from 2E Project Training Participants for Providing Administrative Support

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

In summation, the 2E Project, which aimed to build capacity in districts to recognize and meet the needs of 2E students, demonstrated promising results. The 2E participants reported that their knowledge and skills were increased; they also had positive attitudes towards their professional learning in the 2E Project. The 2E cohort created mini-modules to raise the awareness of twice exceptionality which helped other educators better recognize 2E students. The 2E cohort also created *2E MTSS Tier 1 Framework* that served as part of the identification process for students with needs that could not be met through general classroom instruction. Further, positive student growth was reported by several participants, including the ability of 2E students to successfully progress through the education system, less behavioral issues, and increased student self-confidence. Improved school culture was also observed by participants.

Limitations of the Study and Suggestions for Future Research

Using the case study method to evaluate a program has several limitations (Guba & Lincoln, 1981; Stufflebeam, 2001; Yin, 2014). First, a case study does not provide scientific generalization. According to Yin (2014), “case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes” (p. 21). The theoretical propositions, if in a case of a multiple case study, would be made by two or three cases to predict similar results (*a literal replication*) or by four to six cases to predict contrasting results but for anticipatable reasons (*a theoretical replication*) (Yin, 2014, p. 57). The context of this study was one school district, which had four embedded cases representing different school settings. This study fit one of the four classes of the purpose of a case study as described by Guba and Lincoln (1981), which involved the process of rendering. To render means to depict: “At the evaluation level, the appropriate action is to *epitomize*, and the appropriate products of this rendering at the evaluative level are *portrayals*” (Guba & Lincoln, 1981, p. 373). Throughout the data analysis phase, I realized that the 2E Project, itself, should be the object to be portrayed instead of the district or schools. I then recognized that the cross-case synthesis method (Stake, 2006) that I proposed to address the commonality and differences across manifestations would not be applied to examine individual cases (i.e., four school sites) and the multicase (i.e., the Hope District). This does not mean that the context (i.e., the district and four schools) is of less importance. The purpose of the study was to understand the implementation of the 2E Project in the Hope District. The results of this study would directly benefit the Hope District. The results may indirectly benefit school districts of similar conditions. For example, the “coalition of the willing” is a principle of operation

that other districts could learn from. Naturalistic generalizations where readers can “learn from the case either for themselves or to apply to a population of cases” (Creswell, 2013, p. 200) is left for readers.

A suggestion for future research based on this limitation is to decide what needs to be portrayed in a case study. If the purpose of a PD evaluation case study is to understand educators’ work or learning experiences, educators’ personal stories should be the depicted object. Or, if the purpose of a PD evaluation case study is to understand several aspects of a training (i.e., educator outcomes, student outcomes, and organizational support and changes), the training, per se (e.g., the 2E Project), should be the described object.

A second limitation is that case study research falls short of providing information for judging a program’s merit and worth (Guba & Lincoln, 1981; Stufflebeam, 2001; Yin, 2014). The implementation and outcomes of the 2E Project were demonstrated by qualitative data which may be considered less persuasive than quantitative data. Variables such as increased educator and student outcomes resulting from the 2E Project, however, could not be easily measured. Case study methods that were used to understand the 2E Project in the Hope District could not demonstrate a causal relationship between the 2E Project and 2E students’ academic growth. Neither impact of student learning data nor documentation of services provided to students were available for analysis. Little evidence was provided to inform participants’ use of new knowledge and skills in classrooms (level four) and student learning outcomes (level five) (Guskey, 2000). Research findings were limited to Guskey’s first three levels of professional learning

evaluation (2000): Participants' reactions, participants' learning, and organization support and change.

Based on the aforementioned limitation, a second suggestion for future evaluation studies on professional learning is to identify which type of evaluation needs to be conducted. A formative evaluation is appropriate before a program is fully implemented; therefore, an evaluation study, in this case, is employed to ensure professional learning activities are feasible and appropriate. A process or implementation evaluation is appropriate while a program is in progress. An outcome evaluation is appropriate after the completion of a program; it can be used to determine a program's effects on educators or students. This study, for example, utilized an outcome evaluation where case study methods were used to understand the effects of the 2E Project on 2E cohort educators and 2E students. The focuses of the 2E Project in Hope District were mini-modules delivered to colleagues and a MTSS framework used in the identification process. The student outcome measures had no direct connection with those initiatives. Researchers need to make sure they have realistic expectations when adopting a case study methodology. An impact evaluation is suitable to assess the effectiveness of professional learning on improved student learning outcomes in the cognitive, affective, and psychomotor domains. To demonstrate the effectiveness of professional learning on students' learning, researchers must focus on collecting data of educators' use of new knowledge and skills in classrooms (level four) and student learning outcomes (level five; Guskey, 2000). Experimental quantitative research is needed to demonstrate causal relationships.

A third limitation of this study was the short window for data collection and the prolonged data analysis process that resulted in limited evidence and member checks.

One strategy that could be useful to researchers to acquire a more nuanced view of the professional learning that took place for a particular project is to ask participants to provide written documents before interviews, such as assignments that were completed during training or IEPs where special interventions were documented. Another strategy to acquire a more nuanced view of professional learning is to become an insider or a participant observer of the professional learning activities under investigation. I took Levels 1 and 2 training in Spring 2014 and a 5-day summer institute in Summer 2016. Taking Levels 1 and 2 with Colorado educators helped me relate to the interview participants. I understood what my participants experienced, and I was able to paraphrase or laugh with them during interviews. Togetherness, the spirit that Hope Administrators demonstrated, could be cultivated between a researcher and potential research participants.

Implications for Practice

Implications for Improving Educator Outcomes Through Professional Learning

Specialized academic training and ongoing professional learning are essential to supporting twice-exceptional learners (Baldwin et al., 2015). Since pre-service training in gifted education is limited (Johnsen, 2013a), participating in twice-exceptional professional learning is a way for educators to increase their knowledge and skills in specialized methods to identify and provide enriched, advanced educational opportunities and simultaneous supports of academic and social-emotional growth to special student populations. The educator outcomes in an evaluation of professional learning activities consist of educators' attaining and utilizing new knowledge and skills (Guskey, 2000). To

help educators increase knowledge of and skills in twice exceptionality, professional learning providers must incorporate strategies that help educators access and retain information, such as hands-on practices, collaborative opportunities (e.g., networks and cohorts), case study assignments on real students, and role-playing (e.g., mock IEP/advanced learning plan meetings). Professional learning providers and administrators may also consider job-embedded training and hybrid learning options to address time and geographical challenges.

Furthermore, findings from this study revealed that educators also have affective needs that need to be met in any professional learning endeavor. A clear alignment between personal and professional goals is key to a fulfilling career as an educator. Working together toward the betterment of educational services for students with exceptionalities creates a positive culture among educators and administrators. Recognition and appreciation—honoring educators’ time and making the most of resources in a district—can be accomplished by intentionally developing evaluation plans at the onset of professional learning that include success indicators and measures of educator and student outcomes. Personnel change is inevitable. Given leadership or cohort culture may change over time, ongoing evaluations should be used to guide the next steps of an initiative.

Implications for Improving Student Outcomes Through Professional Learning

It is generally believed that effective professional learning should lead to improved student learning outcomes. The preliminary findings of the case study of the 2E professional development in the Hope District suggest that students’ academic and

affective outcomes include successful progression through the education system, improved engagement, higher levels of self-confidence, and lower incidences of behavioral issues. With an aim to improve 2E students' learning outcomes through professional learning, educators must ultimately adopt data-driven, classroom-focused activities that move their learning from increasing awareness to changing practices. Professional learning activities in which active learning strategies are employed and have the possibility to change classroom practices include action research, collaborative analysis of student learning, and lesson study. Success indicators and measures of student outcomes must be included in evaluation plans and developed by 2E training participants because those participants are in different positions and have either direct or indirect involvement in 2E students' school experiences. To demonstrate growth of the 2E student population is not easy. In addition to test scores, the State Administrator A suggested multiple case studies to be considered. However, as stated earlier, it is necessary to clarify the goal for conducting an evaluation study of a professional learning activity. Despite which method is employed to determine impact of the 2E Project in the future, administrators must make it a priority to identify student growth as part of long-term project goals. Twice-exceptional training in the future must incorporate the implementation and evaluation of 2E interventions in order to help determine the impact of training on 2E students.

Implications for Creating Organizational Support and Changes for Professional Learning

First, in order to receive greater administrative support, 2E training goals and outcomes must be shared with administrators. Further, administrators need twice-

exceptional training as well. The State Administrator A suggested that participants might consider presenting about twice exceptionality at meetings where superintendents or special education directors are in attendance. Making positive connections with educators outside of the gifted education field is also important. The 2E Project was funded because of its connection to special education and the IDEA Part B funding that supports special education. Also, for educators, training on twice-exceptional policy and advocacy should be included. This training need was mentioned by the School 3 Learning Specialist and State Administrator B.

Second, 2E training must have built-in time for collaboration. This can be accompanied by a hybrid learning option where educators learn basic knowledge through online learning and strengthen their skills through real-time collaborative work, such as utilizing a team approach to applying the problem-solving model of MTSS. Also, the mini-module idea can be used to raise awareness of twice exceptionality. The 2E Project in the Hope District revealed that, even though each mini-module presentation did not take a huge amount of time out of each staff meeting, the opportunities to give presentations sometimes were sacrificed due to other priorities. Professional learning providers may want to create multiple platforms for participants to share their learning, such as online learning modules.

Third, educational services for 2E students should be part of general education initiatives, such as MTSS, because 2E students are first general education students. Efforts to identify and serve 2E students should not be considered extra work that educators need to add to their already-full plates. In the 2E participants' experiences, they believed that 2E identification and services must work within the MTSS framework.

Finally, I put out a call to administrators who want to improve the education system in a way that every student has adequate opportunities to fulfill their potential. For the 2E Project in the Hope District, the interview data suggested that the structural features of professional learning (Desimone, 2009; Garet et al., 1999), along with the passionate 2E cohort members and intangible support from the Hope Administrators, facilitated the improvement of school culture. Strategies and models can be learned and borrowed from a district; however, the spirit of people cannot be easily reproduced. The 2E Project presented in this study is the story of the Hope District. Educators should feel encouraged to create a story or legacy of their own.

In short, ongoing evaluations that have clear connections between training and student outcomes are needed for accountability and sustainability. Educators, professional learning providers, and administrators must intentionally seek professional learning activities that have these features delineated in the Every Student Succeeds Act: sustained, intensive, collaborative, job-embedded, data-driven, and classroom-focused. Based on the aforementioned discussion and implications, specific recommendations for educators, professional learning providers, and administrators are provided in Table 25.

Table 25

Specific Recommendations for Educators, Professional Learning Providers, and Administrators

Purposes	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 non-traditional 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)

Reflection

I did not try to change the world with this evaluation study. Not until this reflection section had I realized that I began this study with compassion, stayed true to the advantages and limitations of using case study methods, and strived to bring hope to the audience with whom I had shared and will share the findings and implications of this research.

How have I shown compassion in this study? Compassion was born from my experiences as a teacher; it also came from my empathy for people whose talent was not appreciated or ever nurtured in school. Students need opportunities to fulfill their potential; educators need professional learning that aligns their personal and professional goals. To improve, rather than to prove, was the strategy that I took to supporting the participating school district.

Have I enjoyed the pursuit of intellectual interest? Yes. I *love* my research topics: twice exceptionality, educator professional learning, and evaluation. This evaluation study serves as a beginning of a line of research that I want to accomplish. Have I become an expert in case study methodology? Not exactly. However, I found my strength in utilizing case study methodology to answer questions that I tended to ask—I care about improvement more than proof. As such, I recognize that I need to collaborate with other professionals who enjoy dealing with numbers.

How have I brought hope to my audience? When planning for this study, I reached out to five school districts that partnered with the Colorado Department of Education on the 2E Project, who had either finished the two-year cycle or who were just completing the first-year training. This study was made possible because the Hope

Administrators first demonstrated their interest in this evaluation study. They not only were open to this program evaluation idea, but they also were willing to support a foreigner's research study. The Hope Administrators first gave me hope. It is a privilege to be a recipient of the support and trust of all the participants of this study. I cannot pay it back fully, so I pay it forward. Educators I encountered who often expressed their frustration by how little is done for gifted and talented students have been told, "There is hope." Ongoing professional learning and evaluation endeavors are the two approaches I will take to advance the profession of education. Humbly, I will show my respect to other professionals by believing in them and supporting them. In sum, I will continue a new chapter of my career with *compassion, truth, and hope*. That is the biggest gain I have made from conducting this study.

Summary

This case study evaluation was conducted in order to understand the implementation of twice-exceptional professional development in the Hope District in Colorado. Educator outcomes as well as perceived student growth and organizational support and changes were examined. The major themes of the findings were (a) increased knowledge and skills, (b) evolved attitudes, (c) recurring challenges, (d) utilizing a team approach, (e) improved performance, (f) difficulty in measuring impact, (g) improved school culture, and (h) planning for the future. The discussion of this study's findings was presented according to the research questions that guided this inquiry, and the implications for practice were presented in three important areas: improving educator outcomes, improving student outcomes, and creating organizational support and changes. Limitations of the study and suggestions for future research were offered to (a) clarify the

case of a case study to be depicted, (b) understand types of evaluation to be employed, and (c) to strengthen data collection practices. Lastly, a personal reflection on the benefits of participating in this case study research was shared. More evaluation studies must be conducted to improve professional learning activities. Understanding the implementation of twice-exceptional professional development will help administrators develop ongoing evaluations in the future that will inevitably result in meaningful changes for twice-exceptional students and the individuals who support them.

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APPENDIX A

**SAMPLE EMAIL SCRIPT FOR THE 2E
PROJECT COMPLETERS**

First email

Title: Let's help advance the 2E Project in Colorado!

Dear (insert Educator's name),

I am conducting my dissertation research in your district. Based on a recommendation from your GT Coordinator, I thought you might be interested in my research topic and participate in an interview.

If you are interested in the interview, please contact CW Jean Lee at lee7391@bears.unco.edu

YOU ARE INVITED!

Study on the 2E Project

Dear Colleague,

As you may have known that Colorado is the only state in the United States where a series of onsite, customized twice-exceptional professional development (i.e., 2E Project) has been implemented (*2014-2015 State of the States in Gifted Education*). Today, you have the opportunity to contribute to the development of the 2E Project!

ADVANCEMENT
BETTERMENT
CONTRIBUTION

What to do: Participate in an interview
Time commitment: 30-50 minutes

You will receive a binder of 2E resources (of your choice!) as a thank-you for your participation in this study.

Contact Information

Chin-Wen Jean Lee
Ph.D. Candidate
School of Special Education, UNC
Phone: 970-405-9988
Email: lee7391@bears.unco.edu

Dissertation title: A Case Study Evaluation of the Implementation of Twice-Exceptional Professional Development

Sincerely,

Chin-Wen Jean Lee
March 6, 2017

Follow-up email

Dear (insert Educator's name),

I hope this email finds you well. If you're still interested in sharing your experience of participating in the twice-exceptional professional development, you can reply my email, saying you'd like to participate in the interview. After the completion of the interview, you will receive a binder of selected 2E resources as a thank-you for your participation in this study.

Your responses are greatly appreciated and valued. Thanks for your time!

Sincerely,

Chin-Wen Lee
March 20, 2017

Email to potential interview participants

Dear (insert Educator's name),

Thank you for showing your interest in the interview about the 2E Project!

Attached is the consent form and interview questions. If you decide to participate in the interview, please provide three days/times in the week of March 22–24 or April 5–7.

Thank you for your time and consideration!

Sincerely,

Chin-Wen Lee
XX, 2017



CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
UNIVERSITY OF NORTHERN COLORADO

Project Title: A Case Study Evaluation of the Implementation of Twice-Exceptional Professional Development (**GROUP 1**)

Researcher: Chin-Wen Lee, M.Ed., School of Special Education
Phone: 970.405.9988
Email: lee7391@bears.unco.edu

Research Advisor: Dr. Stuart Omdal, School of Special Education
Phone: 970.351.1674
Email: Stuart.Omdal@unco.edu

Research Advisor: Dr. Jennifer Ritchotte, School of Special Education
Phone: 970.351.1657
Email: jennifer.ritchotte@unco.edu

The study will examine the implementation of twice-exceptional professional development in Colorado. The ultimate goal of the study is to identify support and strategies to enhance the competences of teachers and specialized service professionals for serving twice-exceptional students.

The interview will take about 40–50 minutes. It will begin with reflections on professional learning and then reflections on twice-exceptional interventions/programming plans that you were involved in. I may schedule a follow-up meeting to make data collection complete if necessary.

I will store audiorecordings of interviews on my personal computer secured by a password that I do not share with others. Audiorecordings will be disposed after a three-year period. I will keep a record of your original identities on my personal computer and in my researcher's journal. All information will be kept confidential to the greatest extent possible. Your personal identifiers will be replaced by pseudonyms in reports.

To establish validity and credibility, I will ask you to review analytic categories and interpretations during the data analysis period. I will also ask you to replace or change any identifiable descriptions in the findings.

Page 1 of 2 _____
(Participant's initials here)

There are no foreseeable risks to you, your school, or the school district beyond those that are normally encountered answering interview questions. **You will receive a binder of selected 2E resources as a thank-you for your participation in this study.**

You will provide valuable information to improve twice-exceptional professional development in the future.

Please know that *participating or not participating* will not affect your relationship with your school or district.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact Sherry May, IRB Administrator, Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

Participant's Signature

Date

Researcher's Signature

Date

Page 2 of 2 _____
(Participant's initials here)

INTERVIEW QUESTIONS

I. Background Information (a checklist will be provided)

1. What describes your main professional responsibilities?
 - General Education Teacher
 - Special Education Specialist/Teacher
 - Gifted Education Specialist/Teacher
 - Specialized service professional (please specify) _____
 - Other (please specify) _____
2. What is your employment status?
 - Full-time
 - Part-time (50–90% of full-time hours)
 - Part-time (less than 50% of full-time hours)
3. What grade(s) do you currently teach/serve? (check all that apply)
 - Pre-Kindergarten
 - Kindergarten
 - Elementary (K–5)
 - Middle School /Junior High (6–8)
 - High School (9–12)
 - Other (please specify) _____
4. At what type of school do you currently teach/serve?
 - Public
 - Charter
 - Gifted Education Center
 - Other (please specify) _____
5. How many years of teaching/service experience do you have?
 - First year
 - Two to five years
 - Six to ten years
 - More than ten years
6. How long have you been working at this school?
 - First year
 - Two to five years
 - Six to ten years
 - More than ten years
7. How old are you?

- Under 25
- 26–29
- 30–39
- 40–49
- 50–59
- 60+

8. What is the highest level of formal education that you have completed?

- Bachelor's degree
- Master's degree
- Doctorate
- Other (please specify) _____

9. Did you have a major, minor, or special emphasis in any of the following areas as part of your **undergraduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

10. Did you have a major, minor, or special emphasis in any of the following areas as part of your **graduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

II. Reflections on the 2E Project

Part 1: Educators' perceptions of the training and implementation strategies as a result of the training

Completion level quick check (check all that apply):

- Level 1, Level 2, Year 2

- 1.1 Looking back on your journey in the 2E Project, how would you describe changes in your teaching/service before, during, and after the training?
- 1.2 Why did you decide to participate in the 2E Project?
- 1.3 What aspects of the 2E Project (Level 1, Level 2, and Year 2) were most helpful and why?
- 1.4 What aspects of the 2E Project (Level 1, Level 2, and Year 2) were least helpful and why?
- 1.5 What additional follow-up activities would help you increase your knowledge of twice exceptionality or help you apply the information to your own work?
- 1.6 What part of the 2E Project would you suggest changing to make it better for future participants?
- 1.7 How has the 2E Project aligned with your professional growth plans?
- 1.8 You are a (___). How was the 2E Project perceived by colleagues in your area of expertise?
- 1.9 What are some of the factors that motivated you to finish the 2E Project?
- 1.10 How do you rate the worth of the 2E Project? (1 = very low. 2 = below average. 3 = average. 4 = above average. 5 = very high.)
Could you please explain why you give that rating?

Please describe the educational services the cohort developed for 2E students.

- 2.1 What are the goals of those initiatives?
- 2.2 What are the success indicators? (What indications revealed that you reached those goals?)
- 2.3 What are the features of educational services for 2E students?
- 2.4 What were factors to the success of educational services for 2E students?
- 2.5 What can be done to assure the success of educational services for 2E students?

Part 2: Educators' perceptions of 2E students' growth

- 3.1 (a prompt provided) What are observed changes regarding student growth? What evidence do you have of positive impact on students' learning? Could you please show me some examples?
- 3.2 How were education outcomes (or student growth) defined and measured?
- 3.3 How have 2E students' learning outcomes been involved in your annual evaluation?
- 3.4 What would be the ideal measures of 2E students' learning outcomes aligned with your role and duties?

Part 3: District/school-level administrative supports

- 4.1 As a result of the 2E Project, what administrative supports were provided for 2E students?
- 4.2 What can be done to improve support for 2E students?
- 4.3 During the 2E Project, what administrative supports were provided for educators to serve 2E students?

4.4 What can be done to improve administrative support for educators to serve 2E students?

4.5 How would you describe the role of your school in the 2E Project?

III. Conclusion

Are there other notable aspects of the 2E Project that you want to tell me about?

APPENDIX B

**SAMPLE EMAIL SCRIPT FOR THE 2E PROJECT
PARTIAL COMPLETERS**

First email to complete the survey

Dear (insert Educator's name),

I am conducting my dissertation research in your district. Based on a recommendation from your GT Coordinator, I thought you might be interested in my research topic and take an online survey.

You can use the following link to complete the anonymous survey:

https://unco.co1.qualtrics.com/SE/?SID=SV_6hBac4GCDC6yo7z

YOU ARE INVITED!

Study on the 2E Project

Dear Colleague,

As you may have known that Colorado is the only state in the United States where a series of onsite, customized twice-exceptional professional development (i.e., 2E Project) has been implemented (*2014-2015 State of the States in Gifted Education*). Today, you have the opportunity to contribute to the development of the 2E Project!

**ADVANCEMENT
BETTERMENT
CONTRIBUTION**

What to do: take an online survey and say **YES** to a follow-up interview
Time commitment: 10 and 20-30 minutes, respectively

You will receive a binder of 2E resources (of your choice!) as a thank-you for your

Contact Information

Chin-Wen Jean Lee
 Ph.D. Candidate
 School of Special Education, UNC
Phone: 970-405-9988
Email: lee7391@bears.unco.edu

Dissertation title: A Case Study Evaluation of the Implementation of Twice-Exceptional Professional Development

Thank you for your time!

Sincerely,

Chin-Wen Lee
 March 6, 2017

Follow-up email to complete the survey

Dear (insert Educator's name),

I hope this email finds you well. If you're still interested in sharing your experience of participating in the twice-exceptional professional development, you can use the following link to complete the survey:

https://unco.co1.qualtrics.com/SE/?SID=SV_6hBac4GCDC6yo7z

If you complete a follow-up interview, you will receive a binder of selected 2E resources as a thank-you for your participation in this study.

Your responses are greatly appreciated and valued. Thanks for your time!

Sincerely,

Chin-Wen Lee

Email to follow-up interview participants

Dear (insert Educator's name),

Thank you for showing your interest in a follow-up interview about the 2E Project!

The interview will take about 20–30 minutes. It is about reflections on professional learning. I may schedule a follow-up meeting to make data collection complete if necessary.

After the completion of the interview, you will receive a binder of selected 2E resources as a thank-you for your participation in this study.

Your responses are greatly appreciated and valued. Thanks for your time!

Please provide three days/times in the week of April 5–7 or April 12–14.

Sincerely,

Chin-Wen Lee

(Insert consent form here)

INTERVIEW QUESTIONS

Completion level quick check (check all that apply):

Level 1, Level 2, Year 2

- 1.1 Looking back on your journey in the 2E Project, how would you describe changes in your teaching/service before, during, and after the training?
- 1.2 Why did you decide to participate in the 2E Project?
- 1.3 What aspects of the 2E Project (Level 1, Level 2, and Year 2) were most helpful and why?
- 1.4 What aspects of the 2E Project (Level 1, Level 2, and Year 2) were least helpful and why?
- 1.5 What additional follow-up activities would help you increase your knowledge of twice exceptionality or help you apply the information to your own work?
- 1.6 What part of the 2E Project would you suggest changing to make it better for future participants?
- 1.7 How has the 2E Project aligned with your professional growth plans?
- 1.8 You are a (___). How was the 2E Project perceived by colleagues in your area of expertise?
- 1.9* At what point did you decide to discontinue the training and why?
What are some of the factors that prevented you from continuing the 2E Project?
- 1.10 How do you rate the worth of the 2E Project? (1 = very low. 2 = below average. 3 = average. 4 = above average. 5 = very high.)
Could you please explain why you give that rating?

Conclusion

Are there other notable aspects of the 2E Project that you want to tell me about?

APPENDIX C

SAMPLE EMAIL SCRIPT FOR ADMINISTRATORS

Dear (insert Administrator's name),

You are invited to participate in an important study on the implementation of the 2E Project!

YOU ARE INVITED!

Study on the 2E Project

Dear Colleague,

As you may have known that Colorado is the only state in the United States where a series of onsite, customized twice-exceptional professional development (i.e., 2E Project) has been implemented (*2014-2015 State of the States in Gifted Education*). Today, you have the opportunity to contribute to the development of the 2E Project!

**ADVANCEMENT
BETTERMENT
CONTRIBUTION**

What to do: Participate in an interview
Time commitment: 30-50 minutes

Contact Information

Chin-Wen Jean Lee
Ph.D. Candidate
School of Special Education, UNC
Phone: 970-405-9988
Email: lee7391@bears.unco.edu

Dissertation title: A Case Study Evaluation of the Implementation of Twice-Exceptional Professional Development

Attached are the consent form and interview questions. If you decide to participate in the interview, please provide three days/times in the weeks of March 27–April 7.

Thank you for your time and consideration!

Sincerely,

Chin-Wen Lee
March 6, 2017

(Insert consent form here)

INTERVIEW QUESTIONS for administrators at the Hope District

I. Background Information (a checklist will be provided)

1. What describes your main professional responsibilities?
 - General Education Teacher
 - Special Education Specialist/Teacher
 - Gifted Education Specialist/Teacher
 - Specialized service professional (please specify) _____
 - Other (please specify) _____
2. What is your employment status?
 - Full-time
 - Part-time (50–90% of full-time hours)
 - Part-time (less than 50% of full-time hours)
3. What grade(s) do you currently teach/serve? (check all that apply)
 - Pre-Kindergarten
 - Kindergarten
 - Elementary (K–5)
 - Middle School /Junior High (6–8)
 - High School (9–12)
 - Other (please specify) _____
4. At what type of school do you currently teach/serve?
 - Public
 - Charter
 - Gifted Education Center
 - Other (please specify) _____
5. How many years of teaching/service experience do you have?
 - First year
 - Two to five years
 - Six to ten years
 - More than ten years
6. How long have you been working at this school?
 - First year
 - Two to five years
 - Six to ten years
 - More than ten years
7. How old are you?

- Under 25
- 26–29
- 30–39
- 40–49
- 50–59
- 60+

8. What is the highest level of formal education that you have completed?

- Bachelor's degree
- Master's degree
- Doctorate
- Other (please specify) _____

9. Did you have a major, minor, or special emphasis in any of the following areas as part of your **undergraduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

10. Did you have a major, minor, or special emphasis in any of the following areas as part of your **graduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

II. Interview Questions

5.1 How did the 2E Project start in the Hope District?

5.2 What did it take to partner with the CDE in the 2E Project?

5.3 How were those four schools selected for the 2E Project?

What are some considerations?

How were you able to get these schools committed to participate in the project?

5.4 What challenges did you have when recruiting and retaining those four schools?

5.5 How did your district support participating schools and educators in Year 2 of the 2E Project?

How did you keep the momentum going?

5.6 To what extent were you able to observe changes in those four schools regarding attitudes toward and support for 2E students?

Can you tell me more about those changes?

III. Conclusion

Are there other notable aspects of the 2E Project that you want to tell me about?

.....

INTERVIEW QUESTIONS for administrator(s) at the Colorado Department of Education

I. Background Information (a checklist will be provided)

1. What describes your main professional responsibilities?
 - General Education Teacher
 - Special Education Specialist/Teacher
 - Gifted Education Specialist/Teacher
 - Specialized service professional (please specify) _____
 - Other (please specify) _____
2. What is your employment status?
 - Full-time
 - Part-time (50–90% of full-time hours)
 - Part-time (less than 50% of full-time hours)
3. What grade(s) do you currently teach/serve? (check all that apply)
 - Pre-Kindergarten
 - Kindergarten
 - Elementary (K–5)
 - Middle School /Junior High (6–8)
 - High School (9–12)
 - Other (please specify) _____
4. At what type of school do you currently teach/serve?
 - Public
 - Charter
 - Gifted Education Center
 - Other (please specify) _____
5. How many years of teaching/service experience do you have?
 - First year
 - Two to five years
 - Six to ten years
 - More than ten years
6. How long have you been working at this school?

- First year
- Two to five years
- Six to ten years
- More than ten years

7. How old are you?

- Under 25
- 26–29
- 30–39
- 40–49
- 50–59
- 60+

8. What is the highest level of formal education that you have completed?

- Bachelor's degree
- Master's degree
- Doctorate
- Other (please specify) _____

9. Did you have a major, minor, or special emphasis in any of the following areas as part of your **undergraduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

10. Did you have a major, minor, or special emphasis in any of the following areas as part of your **graduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

II. Interview Questions

6.1 What are the current and future goals for the 2E Project?

- 6.2 What is currently CDE's role in the 2E Project?
How do you see that role after the project's completion?
- 6.3 What evaluation tools are in place to monitor progress toward reaching these goals?
What data sources will you use to gauge goal attainment?
- 6.4 To what extent have you been able to observe in project schools?
- 6.5 To what extent have you been able to observe benefits or successes as a result of the 2E Project? Can you give me some examples?
- 6.6 What challenges have you been aware of regarding the 2E Project? Can you give me some examples?
- 6.7 How might you modify or adapt the 2E project in the future based on data, observations, or anecdotal information?
- 6.8 What is needed to sustain the work/mission/goals of this project over time?
- 6.9 To what extent do you see this project expanding in the state of Colorado and what is needed to support this expansion?

III. Conclusion

Are there other notable aspects of the 2E Project that you want to tell me about?

APPENDIX D

INSTITUTIONAL REVIEW BOARD APPROVAL



Institutional Review Board

DATE: October 24, 2016

TO: Chin-Wen Lee, M.Ed.

FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [961468-2] A Case Study Evaluation to Understand the Impact of Twice-Exceptional Professional Development

SUBMISSION TYPE: New Project

ACTION: APPROVED

APPROVAL DATE: October 24, 2016

EXPIRATION DATE: October 24, 2017

REVIEW TYPE: Expedited Review

Thank you for your submission of New Project materials for this project. The University of Northern Colorado (UNCO) IRB has APPROVED your submission. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on applicable federal regulations.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require that each participant receives a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please use the appropriate revision forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of October 24, 2017.

Please note that all research records must be retained for a minimum of three years after the completion of the project.

If you have any questions, please contact Sherry May at 970-351-1910 or Sherry.May@unco.edu. Please include your project title and reference number in all correspondence with this committee.

Thank you for your patience with the UNC IRB process. Dr. Roehrs, the first reviewer, has provided approval based on the detailed and thorough revisions and explanations to her initial review. Subsequently, I have reviewed your original and revised materials and am also providing approval. Please be sure to use all amended and revised materials and protocols developed through the review process in your participant recruitment and data collection.

Best wishes with your research and don't hesitate to contact me with any IRB-related questions or concerns.

Sincerely,

Dr. Megan Stellino, UNC IRB Co-Chair

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB's records.

APPENDIX E

CHAIN OF EVIDENCE

Focus	Research Questions	Data Collection	Key Elements to be Examined
Educators	<p>Q1 What were participants' experiences serving 2E students before, during, and after the 2E Project Training?</p> <p>Completion level quick check (check all that apply): <input type="checkbox"/> Level 1, <input type="checkbox"/> Level 2, <input type="checkbox"/> Year 2</p> <p>1.1 Looking back on your journey in the 2E Project, how would you describe changes in your teaching/service before, during, and after the training?</p> <p>1.2 Why did you decide to participate in the 2E Project?</p> <p>1.3 What aspects of the 2E Project (Level 1, Level 2, and Year 2) were most helpful and why?</p> <p>1.4 What aspects of the 2E Project (Level 1, Level 2, and Year 2) were least helpful and why?</p> <p>1.5 What additional follow-up activities would help you increase your knowledge of twice exceptionality or help you apply the information to your own work?</p> <p>1.6 What part of the 2E Project would you suggest changing to make it better for future participants?</p> <p>1.7 How has the 2E Project aligned with your professional growth plans?</p> <p>1.8 You are a (___). How was the 2E Project perceived by colleagues in your area of expertise?</p> <p>1.9 What are some of the factors that motivated you to finish the 2E Project?</p> <p>1.9* At what point did you decide to discontinue the training and why? What are some of the factors that prevented you from continuing the 2E Project?</p> <p>1.10 How do you rate the worth of the 2E Project? (1 = very low. 2 = below average. 3 = average. 4 = above average. 5 = very high.) Could you please explain why you give that rating?</p> <p>1.11 If there were Level 3 training, what would like to learn? What would be the topic?</p> <p>* for 2E partial completers only</p>	<p>Documentation, archival records, interviews</p>	<ul style="list-style-type: none"> ● Perceptions about formats of PD: The PD <ul style="list-style-type: none"> ○ Was offered for a longer duration and greater frequency ○ Involved participants directly for more hours in active, engaged learning activities and environments ○ Was coherent to participants' needs and circumstances ○ Involved participants learning from their peers through collective participation ○ Others ● Perceptions about contents of PD: <ul style="list-style-type: none"> ○ Personalized education ○ Multiple pathways to success ○ Real world experiences ○ Multiple measures of education outcomes ○ Instructional technology ○ Others ● Conditions that affect the development of teacher agency (Calvert, 2016): <ul style="list-style-type: none"> ○ School approach to PD ○ Reason for teacher participation ○ Source of solutions to learning challenges ○ Topics and skills addressed ○ Role of teachers ○ Collaboration ○ Format ○ Tone of learning activities ○ Others

Focus	Research Questions	Data Collection	Key Elements to be Examined
Educators (cont' d)	<p>Q2 How have participants developed and implemented educational services for 2E students?</p> <p>Please describe the educational services the cohort developed for 2E students.</p> <p>2.1 What are the goals of those initiatives?</p> <p>2.2 What are the success indicators? (What indications revealed that you reached those goals?)</p> <p>2.3 What are the features of educational services for 2E students?</p> <p>2.4 What were factors to the success of educational services for 2E students?</p> <p>2.5 What can be done to assure the success of educational services for 2E students?</p>	Documentation, archival records, interviews	
Students	<p>Q3 What are participants' perceptions of the 2E Project's impact on 2E students' learning?</p> <p>3.1 (a prompt provided) What are observed changes regarding student growth? What evidence do you have of positive impact on students' learning? Could you please show me some examples?</p> <p>3.2 How were education outcomes (or student growth) defined and measured?</p> <p>3.3 How have 2E students' learning outcomes been involved in your annual evaluation?</p> <p>3.4 What would be the ideal measures of 2E students' learning outcomes aligned with your role and duties?</p>	Documentation, archival records, interviews	<ul style="list-style-type: none"> • RtI or MTSS framework • Body of evidence (documentation system) • Identification protocol (process, framework, tools) • Educational services (IEP or Section 504 Plan, ALP, or other kinds of educational services) <ul style="list-style-type: none"> ○ Personalized education (student-centered, strength-based planning) ○ Multiple pathways to success (programming options) ○ Real world experiences ○ Multiple measures of education outcomes ○ Instructional technology ○ Others
<p>Related aspects in district strategic plans: To offer a variety of opportunities to meet the unique needs and interests of students. [Creating multiple pathways for student learning]</p>			

Focus	Research Questions	Data Collection	Key Elements to be Examined
District/School	<p>Q4 What were school- or district-level changes that resulted from the 2E Project?</p> <p>4.1 As a result of the 2E Project, what administrative supports were provided for 2E students?</p> <p>4.2 What can be done to improve support for 2E students?</p> <p>4.3 During the 2E Project, what administrative supports were provided for educators to serve 2E students?</p> <p>4.4 What can be done to improve administrative support for educators to serve 2E students?</p> <p>4.5 How would you describe the role of your school in the 2E Project?</p> <p>For Administrators at the Hope District:</p> <p>5.1 How did the 2E Project start in the Hope District?</p> <p>5.2 What did it take to partner with the CDE in the 2E Project?</p> <p>5.3 How were those four schools selected for the 2E Project? What are some considerations? How were you able to get these schools committed to participate in the project?</p> <p>5.4 What challenges did you have when recruiting and retaining those four schools?</p> <p>5.5 How did your district support participating schools and educators in Year 2 of the 2E Project? How did you keep the momentum going?</p> <p>5.6 To what extent were you able to observe changes in those four schools regarding attitudes toward and support for 2E students? Can you tell me more about those changes?</p>	Documentation, archival records, interviews	<ul style="list-style-type: none"> • Support for 2E students • Support for educators to serve 2E students • Conditions that affect the development of teacher agency

Focus	Research Questions	Data Collection	Key Elements to be Examined
District/School	For Administrator(s) at the Colorado Department of Education: 6.1 What are the current and future goals for the 2E Project? 6.2 What is currently CDE's role in the 2E Project? How do you see that role after the project's completion? 6.3 What evaluation tools are in place to monitor progress toward reaching these goals? What data sources will you use to gauge goal attainment? 6.4 To what extent have you been able to observe in project schools? 6.5 To what extent have you been able to observe benefits or successes as a result of the 2E Project? Can you give me some examples? 6.6 What challenges have you been aware of regarding the 2E Project? Can you give me some examples? 6.7 How might you modify or adapt the 2E project in the future based on data, observations, or anecdotal information? 6.8 What is needed to sustain the work/mission/goals of this project over time? 6.9 To what extent do you see this project expanding in the state of Colorado and what is needed to support this expansion?		
	Related aspects in district strategic plans: To support the professional growth of building leaders, teachers and specialized service professionals through reflective practice and purposeful feedback. To support all educators in refining their practice in order to continually meet the needs of students. [Advancing professional excellence]		
	7.0 Are there other notable aspects of the 2E Project that you want to tell me about?		

Note. Calvert, L. (2016). *Moving from compliance to agency: What teachers need to make professional learning work*. Oxford, OH: Learning Forward and NCTAF.

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

APPENDIX F

LOGIC MODEL MATRIX

PD Goal(s) & Corresponding Professional Standards:						
Focuses	Needs Assessment	Resources	Activities	Outputs	Outcomes	Impact
Educators: Teachers, specialized service professionals				Educators' perceptions of the training and implementation strategies as a result of the training		
Students	—	—	—	Educators' perceptions of the training's impact on 2E students' learning: <ul style="list-style-type: none"> • Student academic outcomes (successful progression) • Social and behavioral competencies • Functional outcomes 		
Districts/ Schools				School- and district-level changes made as a result of the 2E Project		

Note. Adapted from *Using the National Gifted Education Standards for Pre-K–Grade 12 Professional Development* (pp. 140–141), by D. A. Troxclair and C.-W. Lee, 2017, Waco, TX: Prufrock Press.

APPENDIX G

**INTERVIEW PROTOCOL FOR THE 2E
PROJECT COMPLETERS**

This interview will begin with questions about your background information, followed by reflections on the 2E Project.

I. Background Information (a checklist will be provided)

1. What describes your main professional responsibilities?
 - General Education Teacher
 - Special Education Specialist/Teacher
 - Gifted Education Specialist/Teacher
 - Specialized service professional (please specify) _____
 - Other (please specify) _____
2. What is your employment status?
 - Full-time
 - Part-time (50–90% of full-time hours)
 - Part-time (less than 50% of full-time hours)
3. What grade(s) do you currently teach/serve? (check all that apply)
 - Pre-Kindergarten
 - Kindergarten
 - Elementary (K–5)
 - Middle School /Junior High (6–8)
 - High School (9–12)
 - Other (please specify) _____
4. At what type of school do you currently teach/serve?
 - Public
 - Charter
 - Gifted Education Center
 - Other (please specify) _____
5. How many years of teaching/service experience do you have?
 - First year
 - Two to five years
 - Six to ten years
 - More than ten years
6. How long have you been working at this school?
 - First year
 - Two to five years
 - Six to ten years
 - More than ten years
7. How old are you?

- Under 25
 26–29
 30–39
 40–49
 50–59
 60+
8. What is the highest level of formal education that you have completed?
- Bachelor’s degree
 Master’s degree
 Doctorate
 Other (please specify) _____
9. Did you have a major, minor, or special emphasis in any of the following areas as part of your **undergraduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

10. Did you have a major, minor, or special emphasis in any of the following areas as part of your **graduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

II. Reflections on the 2E Project

Part 1: Educators’ perceptions of the training and implementation strategies as a result of the training

I am interested in knowing your responses to the 2E Project training.

Completion level quick check (check all that apply):

Level 1, Level 2, Year 2

- 1.1 Looking back on your journey in the 2E Project, how would you describe changes in your teaching/service before, during, and after the training?
- 1.2 Why did you decide to participate in the 2E Project?
- 1.3 What aspects of the 2E Project (Level 1, Level 2, and Year 2) were most helpful and why?
- 1.4 What aspects of the 2E Project (Level 1, Level 2, and Year 2) were least helpful and why?
- 1.5 What additional follow-up activities would help you increase your knowledge of twice exceptionality or help you apply the information to your own work?
- 1.6 What part of the 2E Project would you suggest changing to make it better for future participants?
- 1.7 How has the 2E Project aligned with your professional growth plans?
- 1.8 You are a (___). How was the 2E Project perceived by colleagues in your area of expertise?
- 1.9 What are some of the factors that motivated you to finish the 2E Project?
- 1.10 How do you rate the worth of the 2E Project? (1 = very low. 2 = below average. 3 = average. 4 = above average. 5 = very high.)
Could you please explain why you give that rating?

I am interested in knowing how you developed and implemented educational services for 2E students.

Please describe the educational services the cohort developed for 2E students.

- 2.1 What are the goals of those initiatives?
- 2.2 What are the success indicators? (What indications revealed that you reached those goals?)
- 2.3 What are the features of educational services for 2E students?
- 2.4 What were factors to the success of educational services for 2E students?
- 2.5 What can be done to assure the success of educational services for 2E students?

Part 2: Educators' perceptions of 2E students' growth

I am interested in knowing your perceptions of the 2E Project's impact on 2E students' learning.

- 3.1 (a prompt provided) What are observed changes regarding student growth? What evidence do you have of positive impact on students' learning? Could you please show me some examples?
- 3.2 How were education outcomes (or student growth) defined and measured?
- 3.3 How have 2E students' learning outcomes been involved in your annual evaluation?
- 3.4 What would be the ideal measures of 2E students' learning outcomes aligned with your role and duties?

Part 3: District/school-level administrative supports

I am interested in knowing changes in services have been provided as a result of the 2E Project.

- 4.1 As a result of the 2E Project, what administrative supports were provided for 2E students?
- 4.2 What can be done to improve support for 2E students?
- 4.3 During the 2E Project, what administrative supports were provided for educators to serve 2E students?
- 4.4 What can be done to improve administrative support for educators to serve 2E students?
- 4.5 How would you describe the role of your school in the 2E Project?

III. Conclusion

Are there other notable aspects of the 2E Project that you want to tell me about?

APPENDIX H

**INTERVIEW PROTOCOL FOR THE 2E PROJCT
PARTIAL COMPLETERS**

Survey

I. Background Information

1. What describes your main professional responsibilities?
 - General Education Teacher
 - Special Education Specialist/Teacher
 - Gifted Education Specialist/Teacher
 - Specialized service professional (please specify) _____
 - Other (please specify) _____
2. What is your employment status?
 - Full-time
 - Part-time (50–90% of full-time hours)
 - Part-time (less than 50% of full-time hours)
3. What grade(s) do you currently teach/serve? (check all that apply)
 - Pre-Kindergarten
 - Kindergarten
 - Elementary (K–5)
 - Middle School /Junior High (6–8)
 - High School (9–12)
 - Other (please specify) _____
4. At what type of school do you currently teach/serve?
 - Public
 - Charter
 - Gifted Education Center
 - Other (please specify) _____
5. How many years of teaching/service experience do you have?
 - First year
 - Two to five years
 - Six to ten years
 - More than ten years
6. How long have you been working at this school?
 - First year
 - Two to five years
 - Six to ten years
 - More than ten years
7. How old are you?

- Under 25
 26–29
 30–39
 40–49
 50–59
 60+
8. What is the highest level of formal education that you have completed?
- Bachelor's degree
 Master's degree
 Doctorate
 Other (please specify) _____
9. Did you have a major, minor, or special emphasis in any of the following areas as part of your **undergraduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

10. Did you have a major, minor, or special emphasis in any of the following areas as part of your **graduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

II. 2014–2016 2E Project Participation Experience

1. After participating in the 2014–2016 2E Project, my teaching/service for 2E students changed in a positive way.	1 = Strongly Disagree	2 = Disagree	3 = Neither Disagree or Agree	4 = Agree	5 = Strongly Agree	
2. I participated in the 2E Project because I needed knowledge and skills to serve 2E students.	1 = Strongly Disagree	2 = Disagree	3 = Neither Disagree or Agree	4 = Agree	5 = Strongly Agree	

3-1. The Level 1 online course was very helpful.	1 = Strongly Disagree	2 = Disagree	3 = Neither Disagree or Agree	4 = Agree	5 = Strongly Agree	N/A
3-2. The Level 2 workshop was very helpful.	1 = Strongly Disagree	2 = Disagree	3 = Neither Disagree or Agree	4 = Agree	5 = Strongly Agree	N/A
3-3. Onsite cohort learning in 2015–2016 school year was very helpful.	1 = Strongly Disagree	2 = Disagree	3 = Neither Disagree or Agree	4 = Agree	5 = Strongly Agree	N/A
4. Things that prevented me from continuing the 2E Project:	Open-ended					
5. The 2E Project was aligned with my professional growth plans.	1 = Strongly Disagree	2 = Disagree	3 = Neither Disagree or Agree	4 = Agree	5 = Strongly Agree	
6. The 2E Project was perceived well by colleagues in my area of expertise.	1 = Strongly Disagree	2 = Disagree	3 = Neither Disagree or Agree	4 = Agree	5 = Strongly Agree	
7. I rate the worth of the 2E Project	1 = very low	2 = below average	3 = average	4 = above average	5 = very high	
8. Are there other notable aspects of the 2E Project that you want to tell me about?	Open-ended					

If you are willing to participate in a follow-up interview, please provide your information here. Interview participants will receive a binder of selected 2E resources as a thank-you for your participation in this study. The information will NOT be used for any other purpose.

Name:

Email address:

Follow-up Interview Questions

Completion level quick check (check all that apply):

Level 1, Level 2, Year 2

1.1 Looking back on your journey in the 2E Project, how would you describe changes in your teaching/service before, during, and after the training?

1.2 Why did you decide to participate in the 2E Project?

- 1.3 What aspects of the 2E Project (Level 1, Level 2, and Year 2) were most helpful and why?
- 1.4 What aspects of the 2E Project (Level 1, Level 2, and Year 2) were least helpful and why?
- 1.5 What additional follow-up activities would help you increase your knowledge of twice exceptionality or help you apply the information to your own work?
- 1.6 What part of the 2E Project would you suggest changing to make it better for future participants?
- 1.7 How has the 2E Project aligned with your professional growth plans?
- 1.8 You are a (___). How was the 2E Project perceived by colleagues in your area of expertise?
- 1.9* At what point did you decide to discontinue the training and why?
What are some of the factors that prevented you from continuing the 2E Project?
- 1.10 How do you rate the worth of the 2E Project? (1 = very low. 2 = below average. 3 = average. 4 = above average. 5 = very high.)
Could you please explain why you give that rating?

Conclusion

Are there other notable aspects of the 2E Project that you want to tell me about?

APPENDIX I

**INTERVIEW PROTOCOL FOR ADMINISTRATORS
AT THE HOPE DISTRICT**

I. Background Information

1. What describes your main professional responsibilities?
 - General Education Teacher
 - Special Education Specialist/Teacher
 - Gifted Education Specialist/Teacher
 - Specialized service professional (please specify) _____
 - Other (please specify) _____
2. What is your employment status?
 - Full-time
 - Part-time (50–90% of full-time hours)
 - Part-time (less than 50% of full-time hours)
3. What grade(s) do you currently teach/serve? (check all that apply)
 - Pre-Kindergarten
 - Kindergarten
 - Elementary (K–5)
 - Middle School /Junior High (6–8)
 - High School (9–12)
 - Other (please specify) _____
4. At what type of school do you currently teach/serve?
 - Public
 - Charter
 - Gifted Education Center
 - Other (please specify) _____
5. How many years of teaching/service experience do you have?
 - First year
 - Two to five years
 - Six to ten years
 - More than ten years
6. How long have you been working at this school?
 - First year
 - Two to five years
 - Six to ten years
 - More than ten years

7. How old are you?

- Under 25
- 26–29
- 30–39
- 40–49
- 50–59
- 60+

8. What is the highest level of formal education that you have completed?

- Bachelor’s degree
- Master’s degree
- Doctorate
- Other (please specify) _____

9. Did you have a major, minor, or special emphasis in any of the following areas as part of your **undergraduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

10. Did you have a major, minor, or special emphasis in any of the following areas as part of your **graduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

II. Interview Questions

5.1 How did the 2E Project start in the Hope District?

5.2 What did it take to partner with the CDE in the 2E Project?

5.3 How were those four schools selected for the 2E Project?

What are some considerations?

How were you able to get these schools committed to participate in the project?

5.4 What challenges did you have when recruiting and retaining those four schools?

5.5 How did your district support participating schools and educators in Year 2 of the 2E Project?

How did you keep the momentum going?

5.6 To what extent were you able to observe changes in those four schools regarding attitudes toward and support for 2E students?
Can you tell me more about those changes?

III. Conclusion

Are there other notable aspects of the 2E Project that you want to tell me about?

APPENDIX J

**INTERVIEW PROTOCOL FOR ADMINISTRATORS
AT THE COLORADO DEPARTMENT
OF EDUCATION**

I. Background Information

1. What describes your main professional responsibilities?
 - General Education Teacher
 - Special Education Specialist/Teacher
 - Gifted Education Specialist/Teacher
 - Specialized service professional (please specify) _____
 - Other (please specify) _____
2. What is your employment status?
 - Full-time
 - Part-time (50–90% of full-time hours)
 - Part-time (less than 50% of full-time hours)
3. What grade(s) do you currently teach/serve? (check all that apply)
 - Pre-Kindergarten
 - Kindergarten
 - Elementary (K–5)
 - Middle School /Junior High (6–8)
 - High School (9–12)
 - Other (please specify) _____
4. At what type of school do you currently teach/serve?
 - Public
 - Charter
 - Gifted Education Center
 - Other (please specify) _____
5. How many years of teaching/service experience do you have?
 - First year
 - Two to five years
 - Six to ten years
 - More than ten years
6. How long have you been working at this school?
 - First year
 - Two to five years
 - Six to ten years
 - More than ten years
7. How old are you?
 - Under 25
 - 26–29
 - 30–39
 - 40–49
 - 50–59
 - 60+

8. What is the highest level of formal education that you have completed?
- Bachelor's degree
 - Master's degree
 - Doctorate
 - Other (please specify) _____
9. Did you have a major, minor, or special emphasis in any of the following areas as part of your **undergraduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

10. Did you have a major, minor, or special emphasis in any of the following areas as part of your **graduate** coursework?

	Yes, a major	Yes, a minor or special emphasis	Not a major or minor, but a required coursework	Credit hours	No
Special education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Gifted education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

II. Interview Questions

- 6.1 What are the current and future goals for the 2E Project?
- 6.2 What is currently CDE's role in the 2E Project?
How do you see that role after the project's completion?
- 6.3 What evaluation tools are in place to monitor progress toward reaching these goals?
What data sources will you use to gauge goal attainment?
- 6.4 To what extent have you been able to observe in project schools?
- 6.5 To what extent have you been able to observe benefits or successes as a result of the 2E Project? Can you give me some examples?
- 6.6 What challenges have you been aware of regarding the 2E Project? Can you give me some examples?
- 6.7 How might you modify or adapt the 2E project in the future based on data, observations, or anecdotal information?
- 6.8 What is needed to sustain the work/mission/goals of this project over time?
- 6.9 To what extent do you see this project expanding in the state of Colorado and what is needed to support this expansion?

III. Conclusion

Are there other notable aspects of the 2E Project that you want to tell me about?