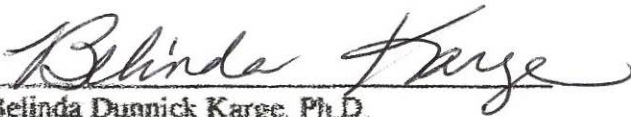


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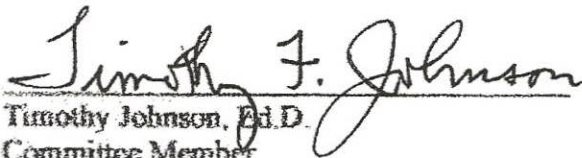
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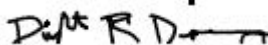


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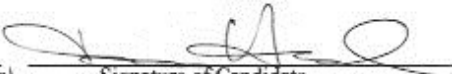
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hours
- Aspiring Administrator Academy: Santa Ana Unified School District
- Special Education Leadership Team
- Coordination of Services (COST) Team Co-Coordinator
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TWICE-EXCEPTIONALITY: TEACHERS' AWARENESS AND TRAINING ABOUT  
TWICE-EXCEPTIONALITY AND THEIR EFFECTS ON THE ACADEMIC, SOCIAL AND  
EMOTIONAL OUTCOMES OF STUDENTS

by

Kimberly Anne Hopwood

A Dissertation

Presented in Partial Fulfillment of  
Requirements for the  
Degree of  
Doctor of Education in  
Educational Leadership  
December 14, 2019

School of Education  
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## ABSTRACT

The amount of research on twice-exceptionality has been gradually increasing over the past 30 years, however, dissemination of the information to the broader educational community has been slow (Bailey & Rose, 2011; Baum, 2004) leaving a significant need for an up-to-date understanding of teachers' awareness and training about twice-exceptionality (Bailey & Rose, 2011; Baum, 2004; Brody & Mills, 1997). While twice-exceptional students may outwardly present as typical, they face unique challenges which include academic and social asynchrony, executive functioning deficits, academic achievement discrepancies, social communication challenges, and most importantly, parents who struggle to find a teacher who is aware and trained to meet the unique learning needs of their children.

This study intended to examine teacher awareness and training about twice-exceptionality and their influence on the academic, social and emotional outcomes of students. The data was interpreted and analyzed through the perceptions and lived experiences of the parents of twice-exceptional children. The inclusion of parent perspectives in this study was critical, as their role as their child's advocate is a vital aspect to the academic and social-emotional success of twice-exceptional students (Neumeister, Adams, Pierce, Cassady, & Dixon, 2007; Neumeister et al., 2013).

The teacher survey for this study was used to collect data from teacher respondents regarding their awareness and training about twice-exceptionality. While the results demonstrated an emerging awareness of twice-exceptionality, the majority of respondents indicated that they had received no training about twice-exceptionality and were concerned as to methods to identify and address their unique learning needs in an increasingly diverse and heterogenous classroom setting. Parent participants acknowledged that they could not rely on

most academic professionals for information and support. As a result, they had to become “experts” in twice-exceptionality advocating for their children’s educational needs providing the professionals with the information necessary to increase their child’s successful outcomes in school. The results of this study demonstrate the need for widespread training for teachers in gifted education, special education and how to identify and address the needs of students who have multiple exceptionalities.

*Keywords:* twice-exceptional, teacher awareness, parental advocacy

## TABLE OF CONTENTS

|  | Page |
|--|------|
| TABLE OF CONTENTS.....                             | i    |
| LIST OF TABLES.....                                | iv   |
| LIST OF FIGURES .....                              | vi   |
| CHAPTER 1: INTRODUCTION.....                       | 1    |
| Statement of the Problem.....                      | 2    |
| Purpose of the Study .....                         | 3    |
| Research Questions.....                            | 3    |
| Theoretical Framework.....                         | 3    |
| Significance of the Study .....                    | 9    |
| Definition of Terms.....                           | 9    |
| Summary .....                                      | 12   |
| CHAPTER 2: REVIEW OF LITERATURE.....               | 14   |
| History of Disabilities in Education.....          | 15   |
| History of Giftedness in Education.....            | 20   |
| History of Twice-Exceptionality in Education ..... | 27   |
| Identification of Twice-Exceptionality .....       | 30   |
| Challenges of Twice-Exceptionality.....            | 39   |
| Challenges in the Classroom.....                   | 40   |
| Asynchronous Development.....                      | 42   |
| Executive Functioning .....                        | 44   |
| Teacher Training.....                              | 47   |

|   |    |
|---|----|
| Summary .....   | 49 |
| CHAPTER 3: METHODOLOGY .....                                      | 51 |
| Research Design.....  | 51 |
| Sampling Procedures .....   | 52 |
| Recruitment of Respondents .....                                  | 53 |
| Setting and Participants.....                                     | 53 |
| Instrumentation and Measures .....                                | 59 |
| Survey .....  | 59 |
| Interview .....   | 60 |
| Reliability.....  | 62 |
| Validity .....  | 63 |
| Data Analysis.....  | 64 |
| Limitations .....   | 67 |
| Delimitations.....  | 67 |
| Ethical Issues .....  | 68 |
| Summary .....   | 70 |
| CHAPTER 4: RESULTS.....   | 71 |
| Research Findings.....  | 71 |
| Research Question 1 .....   | 71 |
| Quantitative Findings of Teacher Awareness.....                   | 72 |
| Teacher Awareness Based on Parental Interviews: Qualitative ..... | 82 |
| Teacher Awareness: Quantitative .....                             | 91 |
| Teacher Training: Quantitative .....                              | 99 |



|   |     |
|---|-----|
| Teacher Training: Qualitative .....                     | 110 |
| Research Question 2 .....                               | 111 |
| Role of Teachers: Qualitative .....                     | 112 |
| Research Question 3 .....                               | 113 |
| Summary .....   | 115 |
| CHAPTER 5: DISCUSSION AND IMPLICATIONS .....            | 117 |
| Discussion of Findings.....                             | 117 |
| Research Question 1 .....                               | 118 |
| Findings on Awareness .....                             | 118 |
| Teacher Training Findings .....                         | 124 |
| Research Question 2 .....                               | 126 |
| Research Question 3 .....                               | 129 |
| Implications for Practice .....                         | 132 |
| Researcher's Motivation for Conducting This Study ..... | 133 |
| Recommendations for Future Research .....               | 135 |
| Summary and Conclusion .....                            | 137 |
| REFERENCES .....  | 138 |
| APPENDICES .....  | 167 |
| Appendix A: Teacher Survey.....                         | 167 |
| Appendix B: Parent Interview Questions .....            | 175 |
| Appendix C: IRB Approval .....                          | 176 |

## LIST OF TABLES

|  |    |
|--|----|
| Table 1. Frequency Data for Age Groups of Respondents .....  | 55 |
| Table 2. Frequency Data for Licensures and/or Credentials of Respondents.....  | 56 |
| Table 3. Frequency Data of Type of School in Which Respondents Are Employed.....   | 57 |
| Table 4. Respondents' Definitions of Twice-Exceptional ( $n = 53$ ).....   | 76 |
| Table 5. Frequency of Words to Define Twice-Exceptionality ( $n = 53$ ).....   | 76 |
| Table 6. Close-Ended Frequency Data of Perceived Strengths of Twice-Exceptional Students ( $n = 57$ ).....                                 | 77 |
| Table 7. Open-Ended Frequency Data for Perceived Greatest Strengths of Twice-Exceptional Students ( $n = 49$ ).....                        | 78 |
| Table 8. Close-Ended Frequency Data for Perceived Challenges of Twice-Exceptional Students in School ( $n = 58$ ).....                     | 79 |
| Table 9. Open-Ended Frequency Data for Perceived Greatest Difficulties of Twice-Exceptional Students ( $n = 51$ ) .....                    | 80 |
| Table 10. Respondents' Perceptions, Beliefs, or Thoughts Regarding Teacher Awareness of Twice-Exceptionality ( $n = 48$ ).....             | 81 |
| Table 11. Most Pressing Challenges Facing Educators Regarding Meeting the Needs of Twice-Exceptional Students in School ( $n = 49$ ) ..... | 82 |
| Table 12. Demographic Data of Parent Participants ( $n = 5$ ).....   | 83 |
| Table 13. Parent Interview Responses About Teachers' Awareness of Twice-Exceptionality .....   | 84 |
| Table 14. Parent Interview Responses Describing Their Experiences with Teacher Knowledge of Twice-Exceptionality.....                      | 85 |
| Table 15. Parents' Interview Responses About Their Child's Diagnosis or Acknowledgement of a Learning Disability .....                     | 86 |
| Table 16. Parents' Interview Responses Regarding Their Child's Diagnosis or Acknowledgement of Giftedness .....                            | 87 |
| Table 17. Parents' Interview Responses Describing Their Child's Learning Disability .  | 88 |

|   |     |
|---|-----|
| Table 18. Parents' Interview Responses Describing Their Child's Gifted Abilities.....   | 90  |
| Table 19. Open-ended Frequency Data for What Respondents Need Most from<br>Their School Administration to Best Meet the Needs of the 2e Students ( $n = 51$ ) | 100 |
| Table 20. Number of In-Service or Workshops Hours Attended on the Topic of Gifted<br>and Talented Education .....   | 105 |
| Table 21. Respondents' Beliefs of the Adequacy of Their training About Gifted and<br>Talented Education .....   | 106 |
| Table 22. Respondents' Confidence that Their School Does All It Can to Help the<br>Following Population of Students ( $N = 58$ ).....                         | 110 |
| Table 23. Parent Interview Responses Describing the Training of Teachers on Issues<br>Related to Twice-exceptionality .....                                   | 111 |
| Table 24. Parent Interview Responses About Who Was the Most Influential To<br>Their Child's Academic Success .....  | 113 |
| Table 25. Parent Interview Responses About Their Role as Their Child's Advocate .....   | 114 |
| Table 26. Parent Interview Responses to Their Child's Overall School Experiences .....  | 115 |

## LIST OF FIGURES

|   |    |
|---|----|
| Figure 1. Bandura's Social Learning Theory of Self-Efficacy .....   | 7  |
| Figure 2. Sequential Exploratory Design Chart Used for Data Collection and Analysis   | 52 |
| Figure 3. Gender of Teacher Respondents.....  | 54 |
| Figure 4. Highest Level of Education of Respondents .....   | 55 |
| Figure 5. Number of Years of Teaching Experience of Respondents .....   | 56 |
| Figure 6. Respondents' Current Teaching Assignment .....  | 58 |
| Figure 7. Population of Students That Teachers Worked with the Most.....  | 58 |
| Figure 8. Sequential Exploratory Design Chart Used for Data Collection and Analysis   | 65 |
| Figure 9. Respondents Who Know a Child with Autism/Asperger's Syndrome<br>Personally .....  | 72 |
| Figure 10. Respondents Who Had Personally Known a Child Who Was Gifted and<br>Talented.....   | 73 |
| Figure 11. Bar Graph Showing Respondents Who Believed They Had Known a Twice-<br>Exceptional Child.....                                       | 73 |
| Figure 12. Bar Graph Representing Respondents Who Believe They May Have Encountered<br>a Twice-exceptional Student Within the Last Year ..... | 74 |
| Figure 13. Bar Graph Representing the Population of Students the Respondents Worked with<br>the Most .....                                    | 75 |
| Figure 14. Word Cloud Showing Codes from Parent Interviews on Diagnosis of Learning<br>Disability and Learning Disability.....                | 89 |
| Figure 15. Word Cloud Showing Codes for Parent Interviews on Diagnosis of Giftedness<br>and Gifted Ability .....                              | 91 |
| Figure 16. Bar Graph Representing Estimated Percentage of Gifted Students That are Twice-<br>Exceptional .....                                | 92 |
| Figure 17. Respondents' Belief That the Term "Twice-exceptional" is Understood by the<br>General Population.....                              | 93 |
| Figure 18. Giftedness and Disabilities Can Be Present in the Same Individual .....  | 93 |

|  |     |
|--|-----|
| Figure 19. Bar Graph Representing Respondents' Belief About Whether Students' Could Be Served for Giftedness and Disabilities Simultaneously .....                     | 94  |
| Figure 20. Bar Graph Showing Respondents' Belief That Gifted Students Could Be Eligible for Special Education Services .....   | 95  |
| Figure 21. Bar Graph Showing Teachers' Beliefs About Whether Students with Diagnosed Learning Disabilities Were Eligible to Receive Gifted Education Services..        | 96  |
| Figure 22. Bar Graph of Respondents' Level of Confidence in Making an Appropriate Referral for Evaluation .....  | 97  |
| Figure 23. Teachers and School Professionals Have Appropriate Information and Methods for Determining Which Students Demonstrate Twice-exceptional Characteristics     | 98  |
| Figure 24. Pie Chart Showing Respondents' Beliefs Regarding the Most Important Factor for Evaluation of Twice-Exceptionality ( $N = 58$ ). .....                       | 99  |
| Figure 25. Bar Graph Depicting Whether Educators Needed More Information and Support on How to Best Address the Needs of Twice-Exceptional Students ( $N = 58$ ) ..... | 101 |
| Figure 26. Bar Graph Depicting Whether Educators Needed More Information and Support on How to Best Address the Needs of Twice-Exceptional students ( $N = 58$ )       | 102 |
| Figure 27. Bar Graph Representing Respondents' Perceived Adequacy of Training in Special Education and Learning Disabilities ( $N = 58$ ). .....                       | 103 |
| Figure 28. Bar Graph Representing Hours of Training in Gifted Education ( $N = 58$ ). ...  | 104 |
| Figure 29. Bar Graph Representing Respondents' Perceived Adequacy Level of their Training in Gifted Education ( $N = 58$ ). .....                                      | 104 |
| Figure 30. Bar Graph Representing In-Service or Workshop Hours on Issues Related to Twice-Exceptionality ( $N = 58$ ). .....   | 107 |
| Figure 31. Bar Graph Representing the Frequency of Training or Workshops Focused on Twice-Exceptional Students ( $N = 58$ ). .....                                     | 107 |
| Figure 32. Bar Graph Representing Respondents' Feelings Regarding the Adequacy of Their Training on Issues Related to Twice-Exceptionality ( $N = 58$ ). .....         | 108 |
| Figure 33. Bar Graph Showing Respondents' Perceptions About How Well-Informed the School Administration was on Issues Related to Twice-Exceptionality ( $N =$          |     |

58) 109

Figure 34. Bar Graph Showing the Percentage of Respondents Having Ranked Each Factor in Specific Orders of Influence Based on the Educational Outcomes of Twice-Exceptional Students ( $N = 58$ ). ..... 112

## ACKNOWLEDGEMENTS

After the first day of orientation for the doctoral program, I had serious reservations about my ability to sustain such an intense learning experience. I knew I had a strong passion for the research, but I also had extreme doubts about my abilities. However, by the second day of the program, I quickly realized that I would be surrounded and supported by a dedicated and supportive group of remarkable professors, committee members and cohort friends that were all committed to mutual success.

To my dissertation committee: Dr. Belinda Karge, Dr. Ann McKellar, and Dr. Timothy Johnson, you all strengthened and encouraged me throughout this process with your own unique “exceptional abilities” providing me with the support I required to sustain the rigor of a doctoral program. Dr. Karge, I cannot overstate how your consistent and unwavering structure and positive encouragement throughout this process provided me with the sense of calmness that I needed to learn and grow with confidence. Dr. McKellar, I can truly say that I would not have continued to pursue this degree if you had not talked me off the ledge of doubt from day one. You reassured me of my direction and purpose, helping me understand that I was on the right path to bring awareness and understanding for twice-exceptional students. Dr. Johnson, thank you for being my friend, an advocate for unique learners (Aidan, in particular!) and helping me with the confidence I needed to begin and end this journey.

To my many extended family members, I am truly blessed and grateful for your sustained support as I have been MIA during the past three years! To my husband Jim, I am generally not good with words, but I truly appreciate the sacrifices you have made through this process. Your support as I pursued this project of passion cannot be understated. To my son Aidan, you are my muse, my motivation and the sole intent for this journey. Through your struggles, efforts and

amazing adventures with your own exceptionalities, other children will benefit! Your personal journey with Autism is not without purpose!

To all members of Cohort 6, I honestly cannot say how many times our text group strands carried me through some rough patches! Our experiences working and playing together from Irvine to Washington D.C. to China have transformed me as an educator, a mom, and as a human being! To LaVonne and Isma, thanks for your friendship and shoulder of support any time I needed guidance, advice, to vent or some APA help! This journey would not have been possible without each and every one of you. To my friends and colleagues at work, thank you for picking up the slack for me when I was overloaded and listening to me go on and on about twice-exceptionality.



## CHAPTER 1: INTRODUCTION

According to Whitmore and Maker (1985), twice-exceptional (2e) learners, gifted students with disabilities, remain one of the most “misjudged, misunderstood, and neglected segments of the student population and the community” (p. 204). As a result, the ability to acknowledge and appreciate all of the potential positive influences these students may have made on society has gone largely unnoticed (Barnard-Brak, Johnsen, Pond Hannig, & Wei, 2015; Leggett, Shea, & Wilson, 2010; Omdal, 2015). The National Education Association ([NEA], 2006) concurred by stipulating that without appropriate education and services, the contributions and discoveries of these future change makers may go unrealized. The fact that this population of students continues to be marginalized should provide educators with the moral and ethical imperative necessary to support and advocate for the twice-exceptional community (Leggett et al., 2010; Ronksley-Pavia, 2015).

The lack of awareness of twice-exceptionality among educators is a consequence of the complex nature of the comorbidity of giftedness and learning disabilities. According to Foley-Nicpon, Assouline, and Colangelo (2013), agreement and understanding of twice-exceptionality among scholars and researchers have been challenging because until recently there has been “no absolute or universal definition” established for giftedness (p. 170). Giftedness can mean different things to different people, and when giftedness coexists with a learning disability, the complexity of identification, assessment, and services increases exponentially (Dare & Nowicki, 2015; Foley-Nicpon, Allmon, Sieck, & Stinson, 2011; Reis, Baum, & Burke, 2014; Willard-Holt, Weber, Morrison, & Horgan, 2013). These complications, in tandem with the limited research on the topic, has led to inadequate awareness, knowledge and training of twice-exceptionality among practitioners and parents (Dare & Nowicki, 2015; Davis & Rimm, 2004; Foley-Nicpon et

al., 2011, 2013a; Omdal, 2015).

### **Statement of the Problem**

Since twice-exceptionality is a relatively new concept in education, researchers have lacked substantial observational and practical research from which to derive information and awareness (Baldwin, Baum, Pereles, & Hughes, 2015; Foley-Nicpon et al., 2011, 2013a; Omdal, 2015; Willard-Holt et al., 2013). Consequently, the majority of educators are unaware of the unique characteristics and behaviors of twice-exceptional students in their classrooms. In supporting any marginalized group in society, “an ounce of awareness is worth a pound of cure” (Allen, 2017, p. 84).

Robertson, Pfeiffer, and Taylor (2011) surveyed 300 school psychologists most responsible for identifying and assessing students, revealed that 60.14% had little to no familiarity with the concept of twice-exceptionality. Similarly, in a study examining future school counselors, Leggett, Shea, and Leggett (2011) found that three-quarters of the participants reported no knowledge about twice-exceptionality. While recent foundational research has shown that gifted students can have a learning disability, and that students with learning disabilities can be gifted, the information is not yet being adequately disseminated to pre-service teacher training programs and to the broader educational community (Assouline, Foley-Nicpon, Colangelo, & O’Brien, 2008; Berman, Schultz, & Weber, 2012; Ronksley-Pavia, 2015).

For the past two to three decades, a small group of researchers, educators, and parents have been on the front lines, struggling to cultivate awareness and understanding of the educational and social implications of educating twice-exceptional students (Besnoy et al., 2015; Giuliani, 2012; Neumeister, Yssel, & Burney, 2013; Yell, Rogers, & Rogers, 1998). This study aims to examine the role of teacher awareness and training about twice-exceptionality. It also

investigates the influence of parental advocacy to expand current understanding of the phenomenon of twice-exceptionality.

### **Purpose of the Study**

The purpose of this mixed methods phenomenological study was to explore and understand the depth and breadth of awareness and training of teachers about twice-exceptionality through the perceptions of parents of twice-exceptional children. For this study, twice-exceptionality was broadly defined, as the characteristic of individuals who have been diagnosed with a learning disability and, who have, at the same time, been identified as having high abilities or giftedness in one or more areas.

### **Research Questions**

This study aims to investigate how to broaden awareness and understanding of twice-exceptionality of teachers and parents by using the following research questions to guide the work:

1. What factors influence teachers' awareness, knowledge and training of twice-exceptionality?
2. What role do teachers play in the academic success or failure of twice-exceptional students?
3. How do parental awareness and advocacy influence the academic outcomes of twice-exceptional students in school?

### **Theoretical Framework**

This study combines Forester's theory of critical pragmatism (Forester, 1989, 1999, 2013) and Bandura's social learning theory of self-efficacy (Bandura, 1977). These theories embody a framework for educator awareness, knowledge, and self-efficacy and the social

context with which parents and teachers lead the charge for educational reform. To improve academic and social outcomes for twice-exceptional students, these theories provide a foundation upon which educators can challenge the status quo, become analytical and critical about their pedagogy and be willing to explore potential unknown alternatives (Forester, 2013).

The five basic principles of critical pragmatism as described by Forester (2013) include:

1. “Out of the box” thinking using it as a generative process rather than paralyzing one;
2. Planning and practice that is a co-generated, co-constructed, negotiated process;
3. Change-oriented individuals willing to face a complicated multi-party “problem” that is characterized by distrust, anger, lack of information, and inequalities of power;
4. The evolution and progression of knowledge requiring learning from and through uncertainty which lead to deeper learning that incorporates the interests and values of others, along with a greater sensitivity and awareness of their emotions;
5. A reconstructive, imaginative, co-generative, problem-solving negotiation with the goal of satisfying the interests of a diverse public (p. 7).

The practice of critical pragmatism obliges educators, and all professionals, to reevaluate and assess their practice through continual critique and inquiry. It mandates the recognition and analysis of processes as well as their outcomes (Forester, 2013; Schultz, 2012). Followers of critical theory claim that meaningful pedagogical change can only be initiated through a crisis of profession that forces the rejection of the status quo (Schultz, 2012; Skrtic, 1991; Skrtic & Sailor, 1996). By its very nature, this crisis of profession within an organization, culture or society, brings division, incoherence, and confusion. However, critical pragmatists believe that it can be followed by a period of “theoretical speculation and extraordinary research aimed at finding a way out of the apparent crisis” (Skrtic & Sailor, 1996, p. 271).

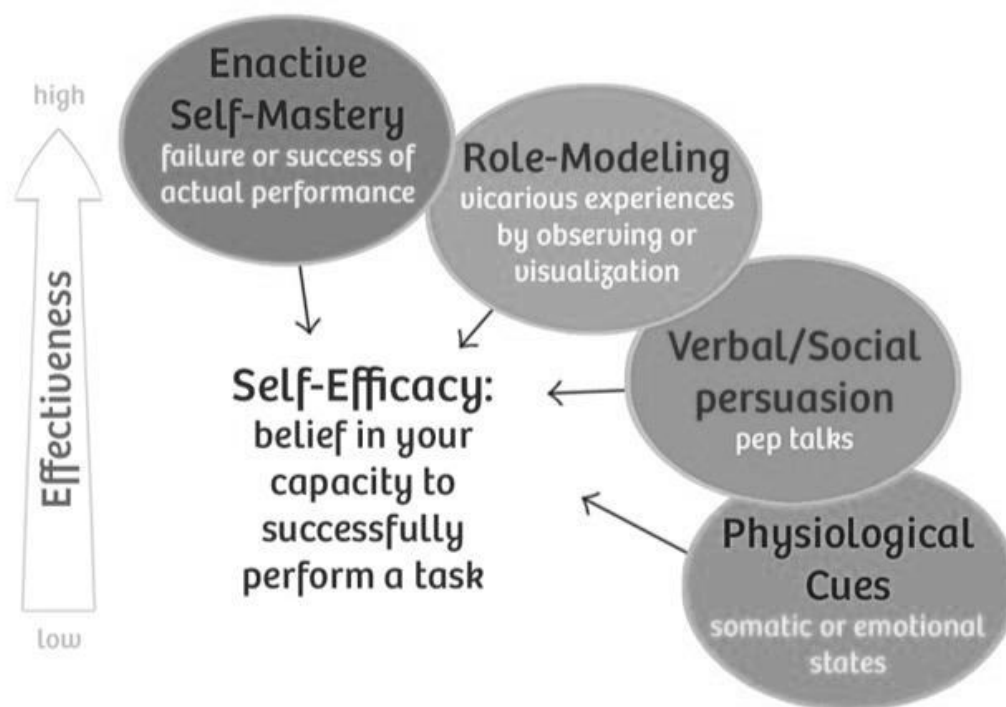
The critical analysis lens involves decision making and subsequent changes that recognizes the intrinsic and inherent social and ethical inequities within the system as well as the ineffective paradigms of practice that support those problems (Skrtic & Sailor, 1996). The critical teacher is one who is not only reflective about how he teaches but becomes “active and militant” about the discourse of teaching, learning and empowerment of students (Smyth, 1989, p. 9). This crisis of profession is evidenced, in the current study, by teacher respondents who have experience teaching twice-exceptional students. These teachers became keenly aware that many of their standard practices needed to be reevaluated which kindled a personal journey of questioning and discovery. The practices or professional models which they considered effective needed to be reevaluated to meet the needs of a new kind of learner.

From a critical pragmatist perspective, the lack of awareness of twice-exceptionality and the need to reform our traditions of practice are shown by the failure of the majority of educators in hitting the critical threshold of a crisis of profession. Much of the educational reform that has occurred in special education and gifted education was initiated by parents in crisis who believed their children with learning disabilities or giftedness had a right to educational equality and a challenging curriculum (Besnoy et al., 2015; Dare & Nowicki, 2015; Davis & Rimm, 2004; Foley-Nicpon et al., 2011, 2013; Omdal, 2015; Ong-Dean, Daly, & Park, 2011; Rubenstein, Schelling, Wilczynski, & Hooks, 2015; Vidergor & Gordon, 2015). However, as demonstrated by Forester’s theory, widespread meaningful pedagogical changes within the minds of educators cannot occur without a crisis of profession from inside the educational community.

The effects of parental advocacy play an important role in teacher awareness and knowledge. However, despite various legal mandates as a result of parental advocacy, the effects have been isolated and not yet universally practiced. Many federal mandates and

advocacy groups initiated by parents like Supporting Emotional Needs of the Gifted (SENG), the Council for Exceptional Children (CEC), the Individual with Disabilities Education Act (IDEA), and Free and Appropriate Education (FAPE) were enacted as a direct response to parental advocacy groups rallying around students who learn differently (Giuliani, 2012; Winzer, 1993; Wright, 2010; Yell, 1998). Although the educational system has historically responded to and complied with legal mandates, it does not fundamentally change on demand (Skrtic, 2005). Compliancy has only gone as far as the letter of the law and generally does not include meaningful pedagogical change or fundamental reformation (Skrtic, 2005).

The second theoretical framework for this study is grounded in Albert Bandura's social learning theory of self-efficacy (see Figure 1). Research indicates that self-efficacy, "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Boz & Boz, 2010, p. 280) and human agency, "the ways that people exercise some level of control over their own lives" (Goddard, Hoy, & Hoy, 2000, p. 480) can have significant positive effects on student achievement and motivation (Boz & Boz, 2010; Goddard et al., 2000; Skaalvik & Skaalvik, 2007; Tschannen-Moran & Hoy, 2001; Woolfolk & Hoy, 1990). Bandura explains that educators' sense of personal agency and self-efficacy is not just a principle, but a necessity that embodies a deliberative and reflective sense of accountability and moral responsibility (Bandura, 2006). The concept that educators should be deliberative and reflective about their practice and pedagogy is supported by critical pragmatists. However, both theories provide a solid basis for educational reform.



*Figure 1.* Bandura's social learning theory of self-efficacy.

As represented in Figure 1, a teachers' sense of self-efficacy is a complex construct that is measured and influenced by a variety of internal and external factors (Bandura, 1982; Magno & Sembrano, 2008; Skaalvik & Skaalvik, 2007). Bandura describes four sources of self-efficacy: direct successful or unsuccessful experiences, learning vicariously through observing others' experiences, positive verbal persuasion, and our emotional or physical state of being (Bandura, 1986, 1997; Kauder, 2009).

Bandura (1982) found that the most important source of self-efficacy is mastery experiences which are shaped when individuals are faced with challenging situations, and they persist even through repeated failures. In effect, we learn as much from our mistakes as we do from our successful experiences and both serve to strengthen perceptions of self-efficacy (Kauder, 2009; Skaalvik & Skaalvik, 2007).

Vicarious experiences are modeled behaviors that can lead to heightened beliefs in the abilities of the observers (Bandura, 1982). When teachers have doubts about their ability to complete a task, yet are given the opportunity to observe others perform or model a similar task, there is a greater chance that the apprehensive teacher may be positively affected by the observation, and perseverance can increase (Kauder, 2009; Magno & Sembrano, 2008; Skaalvik & Skaalvik, 2007). For example, vicarious learning can happen when teachers are given opportunities to observe other teachers or instructional coaches who have experience working with a particular population of students.

Self-efficacious beliefs can also be enhanced when the individual is given verbal or social performance feedback by individuals that they consider to be knowledgeable and trustworthy. However, if the verbal affirmation comes from someone that the observer does not trust, the individual is likely to discredit the feedback. In an educational setting, these verbal affirmations can often come from an administrator or instructional coach who verbally supports the sustained effort and motivation put forth by the reluctant observer (Bandura, 1982).

Finally, the physiological and emotional states of an individual are also a source of self-efficacy which are used to gauge capacity or ability (Salinas, 2016). These physiological states may cause an individual to believe that he is not capable of performing the task (Bandura, 1993; Kauder, 2009). Emotions such as stress and anxiety can be viewed differently, and their manifestations are highly dependent upon the perceived levels of self-efficacy of the individual. Researchers studying the effects of self-efficacy found that teachers with a greater sense of self-efficacy tend to perceive themselves as more organized, willing to experiment, resilient and less critical of difficult or unmotivated students (Tschannen-Moran & Hoy, 2001; Woolfolk & Hoy, 1990) which, in turn, can significantly influence their student's motivation, level of effort,



behavior, and their own sense of self-efficacy (Magno & Sembrano, 2008; Tschannen-Moran & Hoy, 2001).

### **Significance of the Study**

The depth of information and empirical research concerning twice-exceptionality continues to grow; however, there remains a significant need for continued research on teachers' awareness and knowledge of twice-exceptionality (Bailey & Rose, 2011; Baum, 2004; Brody & Mills, 1997). The current study addresses those gaps and explores their educational and social-emotional effects on the parents of twice-exceptional children (Hayes, 2014). Parent perspectives are a critical aspect of educational research, in particular, with twice-exceptional students, as their role as advocate is critical to their child's academic success (Neumeister et al., 2007; Neumeister et al., 2013). By including parent perspectives, this research offers a unique take on the phenomenon of twice-exceptionality. By incorporating a mixed methods research design, this study aims to bridge the gap between the quantitative data reflected in the Teacher Awareness of Twice-Exceptionality (TATE) survey and the qualitative data of parent interviews, capitalizing on the strengths of both research approaches while minimizing the weakness of using a single research method (Johnson & Onwuegbuzie, 2004). This study broadens awareness of twice-exceptional students among educators and highlights the critical role of parental advocacy in the educational and social-emotional outcomes of this special group of learners through an in-depth examination of the experiences, perceptions, and advocacy of parents and dissemination of research findings to the research.

### **Definition of Terms**

*Ability-Achievement Discrepancy (AAD):* A severe discrepancy, which is diagnosed when assessment of a student's achievement yields scores in the intellectually gifted range and

simultaneously, shows average or even below average scores in a specific area such as reading or math (McCallum et al., 2013)

*Asperger's Syndrome (AS)*: A serious and chronic neurodevelopmental disorder characterized by significant and severe social deficits along with restricted interests, as in autism, but, which, in contrast to autism, relatively and selectively preserves language and cognitive abilities (McPartland, Klin, & Volkmar, 2014).

*Asynchrony/asynchronous development*: Development which results when the social, emotional, physical, intellectual, and creative aspects of a person develop at an uneven rate and at a trajectory that is outside of norms (National Association for Gifted Children, 2016).

*Disability*: Limitations in particular areas of functioning not experienced by the normative population (Kauder, 2009).

*Discrepancy Model*: A model which compares a student's potential with his or her actual performance (Bade, 2015) or cognitive ability with academic achievement (Lyman, 2016).

*Executive Function*: A single phenomenon, conceptualized as the efficiency with which individuals go about acquiring knowledge as well as how well they can solve problems across nine areas including: attention, emotion regulation, flexibility, inhibitory control, initiation, organization, planning, self-monitoring, and working memory (Goldstein, Naglieri, Princiotta, & Otero, 2014, p. 4).

*Giftedness*: A state of advanced cognitive abilities in heightened intensity combined to create inner experiences and awareness qualitatively different from the norm (The Columbus Group, 1991, as cited in Kaufman, 2018).

*High Functioning Autism (HFA)*: A term used to refer to people with autism who have an IQ in the borderline or above range (70 or greater). The term specifically refers to cognitive

ability not autistic characteristics, which has resulted in confusion and over-generalization (Assouline, Foley-Nicpon, & Dockery, 2012).

*Intelligence Quotient(IQ)*: A very general mental capability that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly, and learn from experience. It reflects a broader and deeper capability for comprehending our surroundings (Kaufman, 2013).

*Masking Affect/Masking Hypothesis*: The principle that many gifted students with learning disabilities have patterns of strengths and weaknesses that make them appear to have average abilities and achievement (McCoach, Kehle, Bray, & Siegle, 2001). This effect leads to children being seen as average, not gifted or learning disabled, due to their disabilities masking their superior talent and their talents masking their disabilities (Neihart, 2008).

*Specific Learning Disability*: A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations (IDEA, 2004, as cited in Kaufman, 2018).

*Twice-exceptional (2e)/Gifted and Learning Disabled (G/LD)/Dual Exceptionalities*: Individuals who have been diagnosed with a learning disability, and identified with high abilities or giftedness in one or more areas. For example, students who demonstrate the potential for high achievement or creativity in one or more domains such as math, science, technology, the social arts, the visual, spatial, or performing arts or other areas of human productivity and who manifest one or more disability as defined by federal or state eligibility criteria. These disabilities include specific learning disabilities, speech and language disorders, emotional/behavioral disorders, physical disabilities, autism spectrum disorders (ASD), or other health impairments, such as

attention deficit/hyperactivity disorders (ADHD). These disabilities and high abilities combine to produce a unique population of students who may fail to demonstrate either high academic performance or specific disabilities. Their gifts may mask their disabilities, and their disabilities may mask their gifts. Identification of twice-exceptional students requires comprehensive assessment in both the areas of giftedness and disabilities, as one does not preclude the other. Identification, when possible, should be conducted by professionals from both disciplines and by those with knowledge about twice-exceptionality, to address the impact of co-incidence/co-morbidity of both areas on diagnostic assessments used to establish eligibility requirements for services.

Educational services must identify and serve both the high achievement potential and the academic and social-emotional deficits of this population of students. Twice-exceptional students require differentiated instruction, curricular and instructional accommodations or modifications, direct services, specialized instruction, acceleration options, and opportunities for talent development that incorporates the effects of their dual diagnosis.

Twice-exceptional students require an individual education plan (IEP) or a 504-accommodation plan with goals and strategies that enable them to achieve the level and rate commensurate with their abilities. This comprehensive education plan must include talent development goals, as well as compensation skills and strategies to address their disabilities, as well as other social and emotional needs (Reis et al., 2014).

### **Summary**

The lack of awareness, knowledge and training about twice-exceptionality within the education system has marginalized gifted students with learning disabilities. Recent research has shed a light on these students; however, there remains a significant gap in awareness, knowledge

and services for 2e students. Using Forester's theory of critical pragmatism (Forester, 1989, 1999, 2013) and Bandura's social learning theory of self-efficacy as theoretical frameworks, this study examines the awareness, knowledge and training of twice-exceptionality among teacher and parent respondents. This research adds significantly to the scholarship on twice-exceptionality and broadens the awareness of this special population of learners among educators and parents with the goal of improving their academic and social-emotional outcomes.

## CHAPTER 2: REVIEW OF LITERATURE

The historic lack of collaboration between special education and gifted education research has had a detrimental effect on teacher awareness and knowledge of twice-exceptionality. It is also a key cause for the absence of standardized identification and assessment protocols for twice-exceptional students (Kaufman, 2018; Pfeiffer & Foley-Nicpon, 2018; Prior, 2013; Reis et al., 2014). The dearth of awareness of dual exceptionalities is a result of the inability to find common ground among students who are gifted and those who are identified with learning disabilities (Assouline & Whiteman, 2011a; Bianco & Leech, 2010a; Foley-Nicpon, 2015; Foley-Nicpon et al., 2011; Kaufman, 2018; Prior, 2013; VanTassel-Baska, 2015; Zirkel, 2016). This separation has resulted in an “artificial mutual exclusiveness” isolating the two areas of educational research (Kaufman, 2018, p. 3). Although recent studies suggest that there may be as many as 180,000 unidentified twice-exceptional students in American schools, little to no evidence exists that demonstrates widespread efforts are being made to identify these students which exacerbates educators’ lack of awareness and knowledge of these students resulting in extremely limited or non-existent training opportunities for teachers (Baum, Schader, & Owen, 2017; Kaufman, 2018; Prior, 2013).

The review of the literature in this chapter presents the historical framework upon which our current understanding of twice-exceptionality has been developed. It describes the work of various researchers, educators and psychologists on topics relevant to twice-exceptionality beginning with the historical context relevant to the growth of special and gifted education. This chapter explains how the merging of these two fields of research can help to facilitate a more comprehensive understanding of comorbidity of giftedness and disabilities. The chapter concludes with a discussion of the latest research addressing the needs and challenges of students

and teachers in the classroom.

### **History of Disabilities in Education**

Examination of the political and racial divisions of the early 20<sup>th</sup> century makes for a clear understanding as to how not only racial segregation, but segregation of all marginalized groups in education began. However, the racial segregation movement of the 1950's brought forth historic changes in education (Esteves & Rao, 2008; Yell et al., 1998) illustrated in the landmark decision of *Brown v. Board of Education* (1954). This court case was the first significant legislation to determine that segregation by race was a violation of equal protection rights under the Fourteenth Amendment. Not only did this case end the "separate but equal" practice, it also ultimately led to equal access to public education for students with disabilities and directed the future course of special education litigation and laws (Esteves & Rao, 2008; Wright, 2010; Yell et al., 1998).

Prior to the *Brown* decision, children with disabilities had no legal rights or protections and rarely received any formal public education. Despite the equal protection precedent set in *Brown*, many states were not quick to respond to accept and educate children with disabilities. While some states made concerted efforts to provide equal educational opportunities for students with disabilities, others did not go farther than allowing them to be admitted (Yell et al., 1998). Many children with disabilities still remained held in separate facilities isolated from their peers and relegated to perform non-academic, menial tasks. Those who did have access to special education services had very few successful outcomes (Giuliani, 2012). The exclusion of children with disabilities from public education forced parents to keep their children at home or put them in an institution (Yell et al., 1998).

The role and influence of parent advocacy has been well-documented in education

literature (Giuliani, 2012; Neumeister et al., 2013; Yell et al., 1998). Historically, parental advocacy at the local level has been the driving force bringing public awareness to children with disabilities. Parental impact on educational policy was first established in 1933 by the Cuyahoga County Ohio Council for the Retarded Child. This advocacy group consisted of five mothers who protested the exclusion of their mentally retarded children from school (Yell, 1998; Yell et al., 1998). Throughout the 1930's and 1940's, local advocacy groups provided parents an outlet for their frustrations and led to changes in their communities and ultimately influenced a national advocacy movement for people with disabilities (Winzer, 1993; Yell et al., 1998).

By the 1950's, fueled by the momentum of the civil rights movement, parents began to pressure federal courts for equal protection for their children with disabilities. Through national advocacy groups such as The National Association for Retarded Citizens, The Council for Exceptional Children, and The Association for Persons with Severe Handicaps, parents worked together to challenge the status quo and ultimately were able to establish federal legislation that mandated a free and appropriate education for all children with disabilities (Giuliani, 2012; Winzer, 1993; Wright, 2010; Yell et al., 1998). By 1965, with national recognition, the Elementary and Secondary Education Act (ESEA) was passed mandating that all public schools receive federal funds for public education (Esteves & Rao, 2008; U.S. Department of Education, n.d.; Winzer, 1993; Yell, 1998). In 1966, an amendment was added to ESEA specifically granting funds to states for the education of handicapped children (Wright, 2010; Yell, Katsiyannis, & Hazelkorn, 2007).

Despite growing momentum throughout the 1960's and 1970's, most states still did not serve children with disabilities. Many children were still being denied access to public education or placed in inappropriate classes. Since there were no mandatory requirements, some schools



placed children who were physically disabled in classes with children who had severe mental retardation or other depressed cognitive abilities (Martin, Martin, & Terman, 1996).

However, in the early 1970's, several key cases changed the roles and responsibilities of special education: *Mills v. Board of Education of the District of Columbia* (1972) and *Pennsylvania Assn. For Retarded Children v. Commonwealth of Pennsylvania* ([PARC], 1971) (Giuliani, 2012; Martin et al., 1996; Yell et al., 1998). These two cases determined that under the Fourteenth Amendment of the United States Constitution (U.S. Department of Education, 1995), it was the responsibility of state and local school districts to educate students with disabilities and no child should be excluded from public education regardless of disability (Giuliani, 2012; Martin et al., 1996; Yell, 1998; Yell et al., 1998). Additionally, in the PARC decision, the court decided that educational placement decisions must include parental participation (Giuliani, 2012; Martin et al., 1996; Yell, 1998; Yell et al., 1998). As a result of these landmark cases, Congress launched an investigation to determine the status of education for children with disabilities throughout the country. The investigation revealed that 3.5 million children with disabilities were not receiving free and appropriate public education (FAPE) and an additional one million students with disabilities were receiving no education at all despite the recent legislation (Martin et al., 1996; Wright, 2010).

The lack of states' accountability uncovered by the congressional investigation prompted a series of national programs culminating in the Education for All Handicapped Children Act [EAHCA] as Public Law 94-142 which was signed by President Gerald Ford in 1975 and took effect on October 1, 1977 (Martin et al., 1996; Yell et al., 1998). For special education, the EAHCA act provided the most significant protections by the Federal government to date (Martin et al., 1996; Yell et al., 2007). This act stipulated that education for children with disabilities

was not a privilege, but a legal right. The act required that all children with disabilities must have an individualized education plan (IEP) that included parent input. The IEP established access to a free and appropriate education (FAPE) and introduced the idea that children with disabilities should be served in the least restrictive environment (Baum et al., 2017; Martin et al., 1996). Unlike prior legislation, EAHCA provided states with some funding to help offset the cost of special education services; however, it did not legislatively mandate that states must serve children with disabilities (Martin et al., 1996). Missing from the legislation were specific guidelines as to what constituted a free and appropriate public education in the least restrictive environment. This left the guidelines for FAPE ambiguous and to be specified by the courts (Yell & Drasgow, 1999). Lacking a concrete definition, the question of what constituted a fair and appropriate education continued to be argued and debated in the courts for years to come.

In 1990, after a series of amendments, EAHCA was reauthorized and changed to the Individuals with Disabilities Act (IDEA). Yet, despite multiple amendments and name changes attempting to increase accountability and improve educational outcomes in reading, employment, and independent living (Wright, 2010) IDEA still lacked specific FAPE guidelines. Therefore, Congress remained reliant upon a student's IEP to serve as a blueprint for FAPE (Yell et al., 2007).

In 1982 and 2017, two landmark Supreme Court cases helped to clarify FAPE guidelines (Yell & Bateman, 2017). The first ruling came with *Board of Education of the Hendrick Hudson Central School District v. Rowley* (1982). This case involved Amy Rowley, a student with a severe hearing impairment who was also academically proficient. While her parents agreed with most of her IEP, they requested that Amy be provided a sign language interpreter (Yell & Bateman, 2017). After appeals in federal courts and the U.S. Court of Appeals, the U. S.

Supreme Court ultimately decided that since Amy was passing from grade to grade, the district had met its FAPE obligation (Yell & Bateman, 2017). This decision meant that since Amy Rowley was passing from grade to grade, it was decided that the district was not required to determine the educational benefit of her IEP. In dissent, other justices wrote that FAPE should require more (Yell & Bateman, 2017). In essence, the *Rowley* decision held that IDEA and FAPE were not intended to maximize students' potential but only to allow for some educational benefit. Subsequent cases such as *Parents of Student v. Hermosa Valley* (Adams & Associates, 2012) and *Parents on Behalf of Student v. Oakland Unified School District* (Adams & Associates, 2014) upheld this minimum standard stating that despite potential educational benefit, school districts were not required to attempt to maximize a student's potential. This standard not only limited possible services for students with disabilities, but it also impacted gifted students by freeing districts from the obligation to offer accelerated classes or programs for gifted students.

In *Endrew F. v. Douglas County School District* (2017) the Supreme Court was once again faced with addressing FAPE. The appropriateness of the standard "some educational benefit" was called into question arguing that the standard of FAPE should involve more than a minimum standard of progress (Yell & Bateman, 2017). The justices discussed using a standard that would hold districts to a specific and concrete standard of progress (Yell & Bateman, 2017). While the *Endrew* case did not provide the legal definition of FAPE, or clarify whether or not districts should maximize the educational benefit for a student, it did clarify that the standard requires a level of instruction that will allow for advancement through the general education curriculum (Yell & Bateman, 2017).

Special education law requires remediation services for learning disabilities and

advancement from grade to grade in the regular classroom but does not stipulate or require that schools develop an educational program that is appropriately ambitious or challenging for twice-exceptional learners (Roberts, Pereira, & Knotts, 2015). Denying twice-exceptional students accelerated classes or gifted programming due to *Andrew's* limiting definition of FAPE, districts are following the letter of the law by providing some educational benefit, but it has been argued that they also need to offer an accelerated program when available to maximize the student potential (Gilman et al., 2013; Weinfeld, Barnes-Robinson, Jeweler, & Shevitz, 2005b, 2005a).

### **History of Giftedness in Education**

Similar to the abundant and differing definitions of disabilities, there is comparable dissent about what it means to be gifted because giftedness can mean different things to different people (Baum et al., 2017; Carman, 2013; Crepeau-Hobson & Bianco, 2011; Renzulli, 2002). The first conceptions of giftedness pertained to performance or production in an attempt to identify ability or academic acuity. Definitions of giftedness range from “conservative” views such as those of Lewis Terman depicting giftedness as a fixed, genetic notion, to the more liberal, progressive definitions described by Howard Gardner’s multiple intelligences theory or Renzulli’s Three-Ring Conception of Giftedness (Gardner, 1993; Renzulli, 1978). The American Heritage Dictionary (2000) describes giftedness as a predominately fixed ability by people who are “endowed with great natural ability, intelligence, or talent” (p. 742). This viewpoint tends to rely heavily on intelligence quotient (IQ) scores and academic performance while more progressive definitions describe giftedness as an array of abilities and talents that manifest themselves in a variety of academic, behavioral and social areas.

In the early 20<sup>th</sup> century, Sir Francis Galton sought to prove that intelligence and genius were inherited traits that could be assessed and measured. Galton was heavily influenced and

fascinated by his cousin, Charles Darwin's innate cognitive abilities and theories of evolution (Baum et al., 2017; Sternberg & Davidson, 2005). Simultaneously, in France, psychologists Alfred Binet and Theodore Simon were researching and developing a test intended to measure intelligence (Baldwin et al., 2015; Baum et al., 2017; Jolly, 2008). Working with experienced teachers, their intention was to use their test to identify students too "dull" to benefit from traditional schooling and who would need other programs or curricula to be successful (Baum et al., 2017). Binet and Simon's research culminated in a concept of mental age that was used to interpret test performance and led to the first intelligence quotient (IQ) scale (Baum et al., 2017; Kaufman, 2018). As intelligence research around the world was gaining momentum, the news regarding Binet and Simon's IQ scale spread fast. Despite Binet's warning to not overuse or over-rely on one test to determine a student's capability, the Stanford-Binet test reached cult-status quickly. The ubiquitous IQ score became the barometer for all notions of intelligence for decades to come (Baum et al., 2017).

Using the IQ score to support his intelligence theory was Professor Lewis Terman (1877-1956) from Stanford University. His general intelligence theory, known as the "g factor," became the gold standard construct to measure IQ. It defined intelligence as a "single, global construct" (Dare & Nowicki, 2015, p. 210). According to Terman, individuals with higher IQ's (over 140) had greater physiques, were healthier, more socially adept, and intellectually superior to individuals with lower IQs. The implication of Terman's theory was that in order to be classified as gifted, a student must excel in all areas as well as score high on any achievement and aptitude test (Whitmore, 1980). As his theory continued to gain momentum, he revised and translated the Stanford-Binet skills test, and in 1916, he published the first Stanford-Binet test of intelligence (Baum et al., 2017).

The Terman philosophy was the dominant intelligence theory throughout the early to mid-20<sup>th</sup> century. As knowledge about IQ tests spread, they continued to be the gold standard for evaluating people for the military, school admissions, and job recruitment. IQ testing quickly received exalted status and is still considered one of “psychology’s greatest achievements” (Gardner, 1993, p. 17). However, the popularity of IQ tests continued to perpetuate the stereotypical “perfectionist” belief of gifted individuals as superior in all facets of learning and behavior. The belief of the gifted community as elitist continues today serving to increase the divide between giftedness and learning disabilities. The Terman myth ultimately served to minimize the individual abilities of gifted students who may not present with the overall “g” factor of intelligence.

Throughout the 1960’s and 1970’s, the field of developmental psychology began to introduce new theories regarding intelligence and learning that were challenging the “g factor” and questioning the reliance on high IQ score as the primary marker of intelligence. Leading the charge was June Maker’s (1977) seminal book, *Providing Programs for the Gifted Handicapped*. Her ground-breaking work in giftedness and disabilities was the first to address the educational implications of students with learning disabilities who were also gifted. She emphasized that students with disabilities can exhibit varied patterns of abilities and disabilities rather than universally high or low abilities in all areas as depicted by Terman’s general intelligence theory. Maker (1977) hypothesized that the incidence of giftedness among the handicapped community is equivalent to that in the non-handicapped community and this has been confirmed by more recent studies (Barnard-Braket al., 2015; Silverman, 1997). With that recognition, she also understood that “talent is usually more difficult to identify and nurture among the handicapped because of the interference of the handicapping condition” (Maker, 1977, p. viii). This

interference would later be referred to as the “masking effect” (Leggett et al., 2010; Maker, 1977; McCallum et al., 2013; McCoach et al., 2001; Reis & McCoach, 2000; Rowe, Pace, & Cohen, 2013).

By the late 1970’s, Terman’s notion of giftedness was beginning to be regarded with growing skepticism. Scholars began to recognize the role of equity and access to educational opportunities that did not account for cultural, economic and social differences. Researchers discovered that the identification criteria in Terman’s original participant sample did not represent the general population; as the sample was 90% Caucasian from upper-middle-class families and favored students who had attended traditional schooling and were accustomed to taking paper-and-pencil tests (Gallagher, 2008; Gardner, 1993). The overall intelligence model was evolving to include a definition of intelligence as “a family of relatively discrete mental abilities” or “exceptionalities,” that were fairly independent of one another (Gardner, 1993, p. 18). By the end of the 1970’s, gifted research confirmed that gifted individuals can possess high abilities in at least one or more areas, known as exceptionalities, which can be in a specific and varied academic or creative domain (Baum et al., 2017; Brody & Mills, 1997; Gardner, 1993).

In 1969, the first federal initiative for Gifted and Talented Education (GATE) was written under the Elementary and Secondary Education Amendments (ESEA). ESEA designated federal funds under Title III and IV to develop gifted and talented programs (Brown & Garland, 2015; Stephens, 2000). In 1972, the first federal definition of giftedness came with Public Law 91-230, Section 806, known as the *Marland Report*, which detailed the state of gifted education in the United States (Jolly & Robins, 2016). Not only did the report urge the adoption of a definition for gifted and talented, but it was the first official report which included additional talents or abilities for giftedness other than an IQ score. The report, authorized by the U.S. Commissioner

of Education, defined what it meant to be gifted and also addressed the educational needs of gifted students (U.S. Commissioner of Education, 1972). Along with general intellectual ability, the report included high performance or potential ability in specific academic aptitude abilities, creative or productive thinking, leadership ability, visual or performing arts, and psychomotor abilities (U.S. Commissioner of Education, 1972).

The *Marland Report* did not include any legal mandates, provided minimal federal funding, and was short-lived, but it served to increase awareness of the traits and needs of gifted students (Foley-Nicpon et al., 2013a; Haney, 2013; Rubenstein, Pierson, Wilczynski, & Connolly, 2013). Subsequent amendments to the *Marland Report* facilitated the creation of the Office of the Gifted and Talented within the Department of Education (Haney, 2013). While federal recognition was a step in the right direction, a follow-up report ten years later found that very few of the recommendations cited in the report had been implemented (Gallagher, 2015; Harrington, Harrington, & Karns, 1991; Jolly & Robins, 2016).

With a federal definition and data that specified 3% to 5% of American students were gifted, the *Marland Report* gave gifted education the national recognition and validation necessary to begin implementation of specialized educational programming for gifted students. Not only did the report confirm the need for a gifted curriculum, but it also suggested potential psychological damage if the academic needs of gifted students were not met (Assouline & Foley-Nipcon, 2006). The potential adverse emotional issues cast upon gifted students whose academic needs were not being met opened the door to possible civil rights cases involving student's rights to gifted education programming and protections under IDEA (Assouline & Foley-Nipcon, 2006). It should also be noted that while the *Marland Report* provided a much-needed definition for students with high abilities, it did not discuss or mention the needs of gifted



students with disabilities or the needs of students with disabilities combined with significant cognitive strengths or giftedness (Foley-Nicpon et al., 2013a; Jolly & Robins, 2016). While federal initiatives individually advanced the equal access to education for gifted students and students with learning disabilities, the two exceptionalities did not overlap and remained independent of one another (Assouline & Whiteman, 2011b).

Building upon federal recognition and continuing gifted research, the Gifted and Talented Children's Education Act was passed in 1978 by Senator Jacob Javits, a well-known advocate of gifted children (Baum et al., 2017; Jolly & Robins, 2016). The Javits Act provided a legal definition of giftedness recognizing it may include talents in one or more of the following areas: "general intellectual ability, specific aptitude, visual and performing arts, creativity, leadership, and psychomotor abilities" (Baum et al., 2017, p. 10). Javits also introduced legislation that allowed states to apply for federal grant money to improve the education of gifted and talented students (Jolly & Robins, 2016) and established a national institute for gifted and talented teacher training. While the act recognized the need to provide specialized services, there was no requirement to do so. Furthermore, the act did not address the issue of giftedness coexisting with a disability. Yet, it moved research closer to a more comprehensive and diverse view of giftedness and was another step closer to awareness and recognition of twice-exceptionality.

During this time, researchers like Joseph Renzulli, Sally Reis and Howard Gardner were beginning to understand that giftedness was not an inherent trait as described by Lewis Terman (Gardner, 1993; Reis & Renzulli, 2004). Renzulli (1978) believed that children were extremely diverse learners who had varying degrees of abilities and traits and giftedness was a result of the successful integration of above-average abilities, task commitment, and creativity (Renzulli, 1978). There was a new understanding the giftedness and intelligence were multifaceted and

diverse. Given its complexity, a single IQ score was an insufficient measurement tool (Gardner, 1993; Reis & Renzulli, 2004). Supporting this new hypothesis, Sternberg & Davidson (1986) disputed Terman's notion of universal giftedness, citing that giftedness and high IQ were not synonymous and the use of IQ scores as a measure of giftedness was inadequate.

Throughout the 1980's, despite sporadic funding, gifted education programs began to appear throughout the nation's schools. In 1987, the Jacob K. Javits Gifted and Talented Children and Youth Education Act, or P.L. 100-297, were enacted which from 1988 to 1993 provided \$7.9 million per year to fund research into best practices for gifted education (Jolly & Robins, 2016). Federal educational funding, which is highly dependent on the fiscal health of the government, could not survive the severe budget cuts during the recession in 2008 and all funding was ended until January of 2014 (Jolly & Robins, 2016). Without federal mandates for gifted education, funding remains inconsistent and disparate ranging from guaranteed services protected under special education laws, as recognized in Louisiana and Kentucky, to no recognition as observed in North Dakota (Jolly & Robins, 2016; Zirkel, 2016).

Contrary to the extensive legal history for special education, gifted education has not benefited from the same legislative actions. From 2005-2016, there were only seventeen "gifted-alone" case law decisions, and in all the rulings, the defending school district prevailed (Zirkel, 2016, p. 322). In comparison, this represents a minute fraction of case laws for special education for the same period. There are numerous factors that underlie why gifted education has not been treated with the same fervor as special education, much of which can be attributed back to Terman's ubiquitous "g factor" theory depicting gifted children as universally advantaged and not in need of services to be successful. This erroneous supposition was set in the *Rowley* (1982) case wherein the courts decided that schools were only obligated to provide students the

opportunity to gain *some* educational benefits (Haney, 2013; Stephens, 2000). This case set a minimalist mentality standard that validated the concept that gifted students do not deserve, and the schools do not need to provide, opportunities for them to reach their *maximum* potential (Haney, 2013; Jolly & Robins, 2016; Stephens, 2000).

### **History of Twice-Exceptionality in Education**

June Maker's pivotal book, *Providing Programs for the Gifted Handicapped* (1977), was the first publication describing the spectrum of exceptional abilities in gifted children. Yet, Maker was not the first to acknowledge dual exceptionalities. This recognition actually occurred 50 years earlier by psychologist, researcher and educator, Leta Stetter Hollingworth (1923) in her book *Special Talents and Deficits: Their Significance in Education*. Through her work at the Clearinghouse for Mental Defectives at Bellevue Hospital, Hollingworth began to associate the effects of social seclusion, adjustment during adolescence, and educational negligence on the mental ability and academic success of gifted children (Baum et al., 2017; Kaufman, 2018). In her research with high ability children, Hollingworth noticed that many of her students had dramatic asynchronous development which required a more individualized learning approach not offered in the traditional school (Hollingworth, 1923; Silverman, 1997). When her students' individual insecurities and deficits were identified and corrected, the students were able to thrive and flourish. Most importantly, Hollingworth (1923) noted that, contrary to popular opinion, the main cause of student absenteeism was the inability of schools to provide a curriculum that met individual differences, individual intelligences, and a general lack of ability to adapt to a student's individual strengths and weaknesses.

Throughout the middle of the 20<sup>th</sup> century, awareness of the connection between high ability and behavioral traits was becoming more apparent in special education research

(Baldwin et al., 2015; Cruickshank, Bentzen, Ratzenburg, & Tannhauser, 1961). However, much of the work still remained focused on learning disabilities in the context of brain injuries or other mental deficits rather than a potential for high ability. Studies conducted on brain-injured children by Strauss and Lehtinen (1947) identified neuro-motor system deficits in children with brain damage from childbirth. From this information, they were able to examine the effects of brain-injury on children and determined that learning difficulties and low intelligence were not mutually exclusive (Baldwin et al., 2015). Continuing the brain-injury research, Cruickshank et al. (1961), studied the traits and learning strategies for students who had brain injuries and hyperactivity noticing that many of the students possessed superior intelligence (Cruickshank et al., 1961; Strauss & Lehtinen, 1947). This information led Cruickshank (1971) to hypothesize that hyperactivity and distractibility may be the way high-ability students navigate their environment. He believed that their attention to all stimuli in the environment serves to enhance their knowledge base as well as their perceptions of the world (Cruickshank, 1977; Reis et al., 2014).

In the area of gifted research, theorists such as Leo Kanner (1943) and Hans Asperger (1944) began studying high IQ children that had apparent social deficits and repetitive behaviors. Asperger noticed that these children had archetypal logical thinking, isolated areas of interest and unawareness of environmental demands (Baldwin et al., 2015; Kaufman, 2018). Another study examining gifted students as adults reviewed the childhood biographies of 300 gifted adults reporting that a vast number of them “disliked their educational experiences” while some “struggled with conventional learning experiences” (Goertzel & Goertzel, 1962, as cited in Baldwin et al., 2015, p. 209). This early research with gifted children revealed glimmers of awareness that gifts and disabilities can coexist. A few of those fortunate early-identified gifted

students may have benefitted from a superior curriculum with enrichment opportunities, but those identified with a learning disability, generally only received remediation while neither group was guaranteed even those limited services.

In the 1960's and early 1970's, Terman's erroneous "g-factor" theory had significant deleterious consequences for research on twice-exceptionality. The idea of universal giftedness had gained a stronghold within the education community and was the globally-accepted "gold standard" of intelligence delaying the discovery of the overlapping characteristics among giftedness and disabilities (Baldwin et al., 2015; Jolly, 2009; Kaufman, 2018). Terman's belief of the idealized gifted child who excelled in every domain ultimately perpetuated the belief that giftedness and high IQ were inextricably linked to mental and physical health (Kaufman, 2018) and that "feeble-mindedness", that is, an IQ score below 70, was "fixed, enduring, and hereditary" (Kaufman, 2013, p. 57). As noted by Kaufman (2018), 15 years after Terman published the first edition of his Binet IQ test, its global impact even surprised himself. Despite Terman's admission that his test would most likely have a short shelf life, recognizing that a better test would soon replace his, he held steadfast to his belief that genius could only come from high-IQ (Kaufman, 2013).

In 1966, James Gallagher published *Children with Developmental Imbalances: A Psychoeducational Definition* in which he coined the term "twice-exceptional" to describe students who had a learning disability and a high IQ. Countering Terman's general intelligence theory, Gallagher theorized that giftedness could evolve with "peaks and valleys" and individuals can show "patterns of strengths and weakness" (Baldwin et al., 2015, p. 207). Gallagher's work, along with earlier studies by Goertzel & Goertzel (1962) served as the precursors to the idea that giftedness and learning disabilities can coexist, furthering the notion

that they may be connected in new ways that need further exploration.

On the surface, the differences between special education and gifted education seemed obvious, yet researchers had begun to uncover very real commonalities (Assouline & Foley-Nipcon, 2006; Barnard-Braket al., 2015; VanTassel-Baska, 2015). Despite these new findings, federal and state agencies and the court system still perceived special education and gifted education as distinctly different (Kaufman, 2018; VanTassel-Baska, 2015; Zirkel, 2016) which lead to an imbalance of federal funding and legislation for gifted education versus federal and state funding for special education. The judicial inclination was to avoid adjudicating on the complexity involved with recognizing and determining appropriateness for dual exceptionality despite new federal civil rights legislation and regulations. However, as the definitions of giftedness and disabilities began to expand, case law began to emerge supporting the growing understanding of dual exceptionalities (Assouline & Whiteman, 2011).

### **Identification of Twice-Exceptionality**

In her research on giftedness and learning disabilities, Silverman (2005) identified that among gifted students; one-sixth demonstrated a wide divergence of abilities or had a diagnosable learning disability. One year later, in 2006, the National Education Association (NEA) issued a white paper which stated that twice-exceptional students are “among the most frequently under-identified population in our schools” (p. 1) yet can be “found within every socioeconomic, cultural, racial, and ethnic population” (p. 3). More recently, Foley-Nicpon et al. (2013) reported that gifted children comprise “5% to 20% of the general school population” (p. 170) and of that group, between 300,000 to 360,000 had also been identified with a learning disability or as twice-exceptional. More recent data revealed that the prevalence of twice-exceptionality might be greater than previous estimates due to the revised 6.4 million students

who received services under IDEA as late as the 2010-2011 school year (Snyder, 2015). Using a conservative 6% estimate for the total number of gifted children in American schools suggests that the total number of undiagnosed or misdiagnosed twice-exceptional students is now closer to 385,000 children (Assouline et al., 2015; Kaufman, 2018). However, without standardized identification procedures, prevalence data on twice-exceptionality are difficult to calculate (Assouline & Foley-Nicpon, 2006; Foley-Nicpon et al., 2013; Rubenstein et al., 2013; Schultz, 2012) further explaining why twice-exceptional students continue to remain one of the most “misjudged, misunderstood, and neglected segment of the student population and the community” (Whitmore & Maker, 1985, p. 204).

Assouline and Whiteman (2011) acknowledged that with broader awareness and consistent identification procedures, approximately 7% of school-age children would be categorized as twice-exceptional. Using this estimate, along with data from the U.S. Census Bureau, 3,381,000 school-age American children should have been identified as twice-exceptional (U.S. Census Bureau, 2014). However, due to longstanding discrepancies surrounding the definitions and characteristics of twice-exceptionality (Foley-Nicpon et al., 2011; Lovett, 2013; Maddocks, 2018; Ronksley-Pavia, 2015), researchers have had limited access to identified students (Bailey & Rose, 2011; Baum, 2004; Brody & Mills, 1997; Foley-Nicpon et al., 2011; Nielsen, 2002; Reis et al., 2014). It is for this reason that research has been restricted and only conducted with small sample sizes or individual case studies (Maddocks, 2018; Pfeiffer & Foley-Nicpon, 2018). Without more widespread research on twice-exceptionality, this population of students has little chance for broader identification (Kaufman, 2018; Mayes, Hines, & Harris, 2014; Mayes & Moore, 2016; McKenzie, 2010).

The discussion of identification of twice-exceptionality must also include teachers as they

play a critical role. Extensive research indicates that the greatest obstacle to identification is a teacher's stereotypical expectations of giftedness and learning disabilities (Bailey & Rose, 2011; Baldwin, Omdal, & Pereles, 2015; Foley-Nicpon, Doobay, & Assouline, 2010). Teachers tend to expect more from gifted learners and less from students with learning disabilities (Bailey & Rose, 2011; Bianco, 2005; Bianco & Leech, 2010a; Davis & Rimm, 2004; Minner, 1990). The pervasive belief that gifted students are globally gifted across all areas has hindered teachers from recognizing giftedness in students with disabilities (Bianco, 2005; Bianco & Leech, 2010a). It is for this reason that nearly 41% of gifted students with learning disabilities are not diagnosed until college (McEachern & Bornot, 2001). A study by Barnard-Braket al. (2015) involving a sample of 13,176 students with disabilities, found that over 300 of them had an academic achievement at or above the 90<sup>th</sup> percentile. However, only 11% of them participated in gifted programs because they were never identified with gifted abilities during their school years. Many twice-exceptional students go through their entire educational career unidentified with a disability or giftedness, having received no academic, social or behavioral services or accommodations. The situation is even more dire for economically disadvantaged, culturally diverse students, or students of color (Barnard-Brak et al., 2015; Mayes et al., 2014; McCoach et al., 2001).

Throughout the 1970's, great strides were made in twice-exceptional education as a result of the *Marland Report*. Concurrently, with the passage of Public Law 94-142, IDEA, in 1977, the federal government mandated recognition of the educational needs of students with disabilities. However, it did not yet encompass or recognize the needs of gifted students with disabilities. Nearly 30 years later, in 2004, the IDEA was reauthorized into the Individuals with Disabilities Improvement Act (IDEIA). With this reauthorization, the federal government



acknowledged that a child with a disability could demonstrate exceptional learning potential as well as acknowledging that children who are gifted and talented may also have disabilities. But, the acknowledgement included a flaw concerning identification procedures for twice-exceptionality (Assouline & Whiteman, 2011; Foley-Nicpon et al., 2013; Jolly & Robins, 2016). Prior to the reauthorization, identification of learning disabilities in gifted students primarily consisted of identifying significant discrepancies between their ability to learn and their actual achievement (Assouline, Foley Nicpon, & Whiteman, 2011; Gilman et al., 2013; Kaufman, 2013; McCallum et al., 2013) referred to as the Ability-Achievement Model (AAD). While it was not the sole determining factor for identification of a learning disability, it was a key consideration in the identification process, in particular, for those bright students who may be struggling in school (Assouline et al., 2011; Kalbfleisch & Loughan, 2012; Kaufman, 2013). By using AAD, school personnel were able to identify the peaks and valleys, or asynchronous development in abilities, a hallmark qualification for twice-exceptionality. However, with the reauthorization, IDEIA shifted the identification procedures away from the discrepancy model stating that, “local educational agency shall not be required to take into consideration whether a child has a severe discrepancy between achievement and intellectual ability” (Individuals with Disabilities Education Act [IDEA], 2004). As an alternative, IDEIA relied on the Response to Intervention process (RtI) (Crepeau-Hobson & Bianco, 2011; Gilman et al., 2013; Kaufman, 2013).

Unlike the discrepancy model, the RtI process involves a systematic, three-tier, problem-solving process designed to identify and recognize students who are having difficulties and incorporate research-based instructional practices into the classroom to improve the outcomes for at-risk students. In Tier 1, referred to as “preventive”, involves classroom-based differentiated

instruction, along with various other measurements and frequent assessments are administered by teachers to make decisions about their students' progress (Crepeau-Hobson & Bianco, 2011; McKenzie, 2010). If classroom-based interventions are not successful and the student continues to struggle, they are given more intensive interventions in Tier 2 which involve supplemental instruction designed to help acquire new skills through individually designed modifications or accommodations in instruction (Crepeau-Hobson & Bianco, 2011; Kaufman, 2013; McKenzie, 2010). Tier 3 usually involves more intensive interventions and can include possible eligibility for special education (Crepeau-Hobson & Bianco, 2011; Kaufman, 2013; McKenzie, 2010).

The RtI process is viewed as an effective tool for children who are noticeably struggling since the process focuses on academic and performance-based measures for evaluation. However, for twice-exceptional students, who tend to perform at grade level due to their strengths and compensatory skills, the RtI process may not take into account other skills, abilities or disabilities the student may possess which can result in being overlooked, significantly delaying the identification of learning disabilities in higher functioning students at a time when early intervention is critical (Crepeau-Hobson & Bianco, 2011; Gilman et al., 2013). As the pace of instruction accelerates and academic demands intensify, gifted students with undiagnosed learning disabilities ability to learn the new skills necessary to be successful steadily begin to decline due to the impact of processing challenges such as automaticity, speed, and working memory (Crepeau-Hobson & Bianco, 2011; Gilman et al., 2013; Wormald, Rogers, & Vialle, 2015). The impact of not addressing the undiagnosed disability serves to widen the discrepancy between their ability and achievement. It is for this reason, many researchers still include the AAD model for identification rather than RtI due to its ability to identify the asynchronous

development of bright students who may be struggling in school (Maddocks, 2018; McKenzie, 2010; Rowe et al., 2013; Rubenstein et al., 2013).

As previously stated, identification of twice-exceptionality is not a straight-forward process. The characteristic asynchronous development of twice-exceptional students and wide-ranging scores explains why the reliance on a full-scale IQ score may disqualify them from being identified with a learning disability or giftedness (Foley-Nicpon, Allmon, Sieck, & Stinson, 2011; Kaufman, 2013; Rowe, Pace, & Tulchinsky Cohen, 2013). The full-scale IQ score can misrepresent students' abilities because IQ tests lack the sensitivity to determine significant discrepancies between subtest scores, particularly for gifted populations (Kavale & Forness, 1984; McCoach et al., 2001). The averaging of their high and low scores may serve to mask their actual abilities, explaining why reliance on a single score or a generalized score is inappropriate (Crepeau-Hobson & Bianco, 2011; Foley-Nicpon et al., 2011; Kalbfleisch & Iguchi, 2008; Maddocks, 2018; McCoach et al., 2001; Reis & McCoach, 2000).

While full-scale IQ tests and General Ability Index (GAI) both measure cognitive functioning, the GAI includes measures to explain the extent the students' nonverbal abilities play in their cognitive functioning mitigating the deficits many gifted students have with working memory and processing speed. These nonverbal abilities tend to be suppressed in twice-exceptional students resulting in lower overall scores on timed assessments and short-term memory tasks (Gilman et al., 2013). Therefore, a comprehensive evaluation must include an examination of the student's education records, IQ scores, measures of cognitive processing (GAI) scores, behavioral observations along with classwork or other curriculum based measures (Foley-Nicpon et al., 2011; McCoach et al., 2001; Nielsen, 2002; Rubenstein et al., 2013). Identification requires a trained, experienced teacher or clinician who understands and

recognizes the characteristics of twice-exceptionality (Amend & Peters, 2015; Assouline et al., 2011; Foley Nicpon et al., 2011; Gilman et al., 2013; Kaufman, 2018). When special education service eligibility depends upon complete low performance, and giftedness eligibility depends upon complete high performance, and appropriate assessments are not available, the issue of under identification of twice-exceptionality in education becomes clear (Kaufman, 2018).

In general, twice-exceptional students can be categorized into three primary groups (Baum et al., 2017; Brody & Mills, 1997; Rowe et al., 2013). The first group consists of students that have been identified for their giftedness, yet they exhibit difficulties in school due to undiagnosed disabilities. These students have advanced verbal abilities and often present as “experts” in their preferred areas of interest (Baum et al., 2017; McCoach et al., 2001). Deficits in executive functioning skills such as organization, cognitive flexibility, and task completion can cause these students to be rigid, unorganized and unmotivated by curriculum they may perceive as unchallenging or irrelevant causing them to be viewed as underachievers, lacking in motivation or as lazy (Baum et al., 2017; Brody & Mills, 1997; Brown, Reichel, & Quinlan, 2009; Goldstein & Naglieri, 2013; Zelazo, Blair, & Willoughby, 2016). These deficits make attending to and finishing non-preferred tasks extremely challenging. During their elementary and middle school years, they are able to compensate for their deficits due to their high cognitive abilities. However, as the academic challenges intensify, their coping strategies and gifted abilities may not be able to keep up with increasing academic demands causing many of them to fall behind their peers (Baum et al., 2017; Brody & Mills, 1997; McCoach et al., 2001).

Despite high abilities and advanced intellect, most gifted students with an unidentified disability will spend their entire educational career undiagnosed (Baum et al., 2017; Bianco & Leech, 2010a; Brody & Mills, 1997; Foley-Nicpon et al., 2011; Reis et al., 2014). The ability to

recognize potential disabilities in gifted students is highly dependent upon a teacher's level of awareness, knowledge and previous training in the diverse characteristics of giftedness. For general education teachers, with minimal training in the characteristics of student with learning disabilities, their ability to recognize these characteristics in gifted students is a key barrier to increasing the identification of twice-exceptional students in school (Bangel, Moon, & Capobianco, 2010; Berman et al., 2012; Bianco, 2005; Leggett, Shea, & Leggett, 2011; Moon, Callahan, & Tomlinson, 1999).

The second group of students includes those who are identified with a learning disability early on but whose exceptional abilities have never been recognized. In a study conducted by Baum and Owen (1988), it was suggested that this may be a larger group than many people realize. In their study, Baum and Owen (1988) found that as many as 36% of students identified with learning disabilities had superior or gifted intellectual abilities. A large portion of these students were identified prior to entering school with high functioning autism (HFA), attention deficit disorder (ADD), dyslexia, or other non-specified learning disabilities. Identification issues with this group of students arise when identification of potential gifted abilities is dependent upon a teacher's ability to look beyond the disability label to recognize the students' unidentified gifted abilities (Bianco, 2005; Bianco & Leech, 2010a; Lo, 2014; Lummiss, 2016). Results of studies have determined that teachers are significantly influenced by learning disability labels when considering referrals to gifted programs. Studies revealed that general education and special education teachers were "much less willing to refer students with disability labels to gifted programs than identically described students with no disability label" (Bianco, 2005, p. 285). Although there exists a potential incidence rate of 9.1% of children with disabilities having potential gifted abilities, studies have shown that special education teachers

also experienced similar challenges to general education teachers in recognizing giftedness due to the negative impact of disability labels (Bailey & Rose, 2011; Barnard-Brak et al., 2015).

Given that special education teacher training focuses on remediation of students' weaknesses rather than abilities, special education teachers tend to be significantly less likely to refer students for gifted testing (Barnard-Brak et al., 2015; Bianco, 2005; Bianco & Leech, 2010a).

Research suggests that the largest group, and the group most likely to be unrecognized, are those students who have not been identified with either a learning disability or giftedness. Historically, this group of twice-exceptional children has been overlooked by the education community due to the misconception that dual exceptionalities are "mutually exclusive: both exceptionalities could not exist in one child" (Leggett et al., 2010, p. 2). Their extreme strengths and weaknesses often leave them undiagnosed with either exceptionality (Anthens, Schroeder, Rankin, & McClellan, 2017; Crepeau-Hobson & Bianco, 2011; Kalbfleisch & Loughan, 2012; Kaufman, 2018; McCoach et al., 2001; Reis et al., 2014) masking or camouflaging each other, making the student appear average (Baum et al., 2017; Beckley, 1998; Foley-Nicpon et al., 2011; Gilman et al., 2013; Leggett et al., 2010; Maddocks, 2018; Rowe et al., 2013).

These children are usually buried amongst the general education population, unidentified with either exceptionality, denied access to gifted services and programs to address their high abilities as well as being denied special education services to help address their learning disability (Baum et al., 2017; Kaufman, 2018; Leggett et al., 2010). Although they appear to function reasonably well, they are, unfortunately, performing well below their potential. Regrettably, as coursework becomes more demanding and their academic challenges increase, they tend to become discouraged by school, begin to suffer from behavior issues and have increasingly less confidence in their academic abilities (Baum et al., 2017; Brody & Mills, 1997).

This is also when their learning disability may become more apparent, but since neither exceptionality has been diagnosed, most educators do not to make the connection between negative behaviors and potential symptomology of twice-exceptionality.

### **Challenges of Twice-Exceptionality**

For parents of twice-exceptional children, the inconsistencies they experience between their child's skills and abilities and those required in a typical educational setting become apparent once their children begin school. As the inconsistencies between home and classroom behaviors become more obvious, many parents turn to their child's school for answers. However, more often than not, they do not receive the information they need due to the limited awareness, knowledge and training among educators in twice-exceptionality (Besnoy et al., 2015; Park, Foley-Nicpon, Choate, & Bolenbaugh, 2018).

As a result, many parents are forced to take a more active role in their child's education (Rubenstein et al., 2015) which can be intimidating in the best of circumstances. Parents must balance protecting and increasing their child's gifted abilities while also advocating for their disability within an educational system that does not fully recognize or understand their child's unique learning needs (Besnoy et al., 2015; Dare & Nowicki, 2015; Neumeister et al., 2013; Rubenstein et al., 2015). Parental advocacy is a demanding job that requires awareness, knowledge seeking, negotiation, and continual monitoring (Besnoy et al., 2015; Park et al., 2018). It is highly dependent upon access to information, level of education, cultural background, and a solid grasp of special education and gifted education. Those parents who have been able to advocate and arrange for an appropriate educational program for their twice-exceptional child are from predominately high socio-economic backgrounds, have an advanced education, and do not have significant differences in language and cultural barriers (Dare &

Nowicki, 2015; Ong-Dean et al., 2011).

Twice-exceptional students pose unique challenges for educators as well. Ample research has been conducted regarding teachers' perceptions of students who are gifted or have learning disabilities. However, research related to teachers' perceptions of students who fit into both categories is much more limited (Baum & Editor, 2004; Brody & Mills, 1997; Foley-Nicpon et al., 2010; Mayes et al., 2014). Much of the research on teachers' lack of awareness and knowledge of twice-exceptionality can be attributed to teachers' stereotypical beliefs causing them to be reluctant to refer students for assessment for either exceptionality (Baldwin et al., 2015; Bianco, 2005; Bianco & Leech, 2010b; Lo, 2014). Their inaccurate perceptions can be attributed to many factors such as their pre-service training, lower expectations for students with disabilities and the influential role of labels such as "second language learner," "emotional behavior disorder (EBD)," "gifted," or "learning-disabled" (Allen, 2017; Bianco, 2005; Rubenstein et al., 2013). Due to differing cultural perspectives, lower expectations and inconsistent definitions of giftedness, many educators may not have the training and know-how to look past the label to discover the child's giftedness (Allen, 2017; Bianco, 2005; Bianco & Leech, 2010b; Minner, 1990). This is a primary reason why students with giftedness and learning disabilities are disproportionately under-referred for gifted evaluation (Allen, 2017; Miller, 2009; Minner, 1990).

### **Challenges in the Classroom**

The twice-exceptional students' struggle between their inherent quest for knowledge and underachievement in school is a real dilemma. Despite advanced intellectual abilities, twice-exceptional students struggle to meet the academic and performance expectations required for school. They can be easily distracted, have problems "shifting gears," and lack organization and



time management skills (Attwood, 1998). They face a variety of challenges such as academic difficulties, deficits with planning and organizing assignments and schedules, attention issues, social communication difficulties, impulsivity and emotional volatility (Bailey & Rose, 2011; Baum et al., 2017; Reis et al., 2014; Ronksley-Pavia, 2015; Rowe et al., 2013). All of these challenges are magnified when the student is not academically challenged (Baum, 2004; Silverman, 2005). Their compulsion to share their knowledge with the daily awareness of being academically unsuccessful results in frustration and disengagement from school.

Twice-exceptional students' lack of inhibition, impulsive behaviors, and verbal challenges can be puzzling and frustrating for teachers (Bailey & Rose, 2011; Baum, 2004; Silverman, 2005). Compounding the issues in the classroom are the normative approaches of most general education classrooms which forces gifted children to either conform to the behavior of same age peers or set impossibly high standards for themselves by attempting to strive for perfection (Andronaco, Shute, & McLachlan, 2014). In the classroom and outside of school, twice-exceptional children are in a constant inner struggle of choice of learning with their social peers and never being cognitively challenged or challenging their advanced intellectual abilities with adults but being out of sync socially with older children (Andronaco et al., 2014). When neither option is acceptable, the confusion often leads to underachievement, overcompensation, dropping out, delinquency, drug abuse and other negative behaviors (Andronaco et al., 2014; Kaufman, 2013; Owens, Ford, Lisbon, & Owens, 2016).

The complex learning profiles of twice-exceptional students require “outside the box” teaching strategies that can be perplexing and frustrating. Unaware teachers struggle to understand the dichotomy between twice-exceptional students advanced verbal and intellectual skills combined with what appears to be indifference or disinterest in school. How can a student

be so advanced yet so unsuccessful in school? This mutual misunderstanding causes many bright and capable students to become frustrated by teachers perceptions of them as unmotivated or lazy (Baum et al., 2017; Reis & McCoach, 2000; Rowe et al., 2013; Whitmore, 1980).

Research conducted with twice-exceptional adults confirms their frustrations with their early educational experiences (Rowe et al., 2013). Some participants had negative and painful memories of their early schooling stating that they felt school was useless. Other studies have corroborated these findings with adult participants having felt a sense of resignation, dismay and lost educational opportunities (Bailey & Rose, 2011; Reis, Neu, & McGuire, 1997; Reis & McCoach, 2000; Willard-Holt et al., 2013; Wormald et al., 2015). These reflections are evidenced in the data verifying that 38% to 75% of gifted students underachieve while 15% to 40% will drop out of high school before graduation (Bennett-Rappell & Northcote, 2016; Renzulli & Park, 2000; Ryan & Coneybeare, 2013). For twice-exceptional adults, not being able to work to their greatest potential was their biggest frustration with their early education. Yet, despite the adversity, they all unanimously agreed that they learned to adapt and circumvent their weaknesses by using their strengths to counter their deficits and many went on to successful experiences in higher education (Reis et al., 1997; Wang & Neihart, 2015a; Willard-Holt et al., 2013).

### **Asynchronous Development**

Asynchrony, as a concept, is confusing for parents, teachers and the students themselves (Baum et al., 2017). Baum (2017) described asynchrony as the “uneven developmental rates of a child’s intellectual, emotional, social and motor skills” (p. 61). Silverman (1997) referred to asynchrony as “out-of-sync” (p. 39) behavior that is the underlying cause of the academic and social challenges facing twice-exceptional students. Asynchronous development arises from a

discrepancy between a child's chronological age and mental age. In 1996, the Columbus Group developed a comprehensive definition of asynchronous development as

development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm.

This asynchrony increases with higher intellectual capacity. The uniqueness of the gifted renders them particularly vulnerable (Andronaco et al., 2014, p. 264)

Through a psychometric evaluation, such as the Wechsler's IQ test, asynchronous development can be determined by examining a students' verbal-performance discrepancy quantifying the imbalance between verbal abstract thinking and concrete nonverbal reasoning (Guénolé et al., 2013). Research indicates that nearly one-quarter of all clinically-referred gifted students show Significant Verbal-Performance Discrepancies (SVPD) (Guénolé et al., 2013; Liratni & Pry, 2011; McCoach et al., 2001; Sweetland, Reina, & Tatti, 2006) often resulting in more profound maladaptive behaviors (Guénolé et al., 2013). As the gap widens between intellectual abilities, academic achievement and social-emotional development, as evidenced in twice-exceptionality, so does their ability to regulate behaviors (Foley-Nicpon et al., 2010; Guénolé et al., 2013).

While most gifted students experience some forms of asynchrony, gifted students with learning disabilities are exceedingly vulnerable (Andronaco et al., 2014; Dipeolu, Storlie, & Johnson, 2014; Schultz, 2012; Silverman, 1997). Despite their significantly high intellectual abilities, they may lag far behind their peers in maturity or motor skill development (Baum et al., 2017; Ryan & Coneybeare, 2013). These atypical behaviors leave uninformed teachers baffled and elucidates the critical role of teacher openness and understanding in modifying and accommodating instruction for the diverse needs of twice-exceptional students (Bailey & Rose,

2011; Berman et al., 2012; Foley-Nicpon et al., 2013a; Ryan & Coneybeare, 2013; Schultz, 2012). Most critical for educators is the need for patience and tolerance when working with students that demonstrate asynchronous development (Baum et al., 2017). When students feel psychologically and physically safe, they will socialize, improve and blossom alongside their peers.

### **Executive Functioning**

Researchers define executive functioning (EF) as higher-order thinking processes which occur in the prefrontal cortex of the brain controlling processes like cognitive flexibility, working memory, and inhibitory control (Blair & Diamond, 2008; Isquith, Crawford, Espy, & Gioia, 2005; Zelazo et al., 2016). Cognitive flexibility allows an individual to think “outside the box” or “shift gears” with less effort and view things from multiple perspectives (Blijd-Hoogewys, Bezemer, & van Geert, 2014; Eylen, Boets, Steyaert, Wagemans, & Noens, 2015; Jackson-Gutierrez, 2018). It also allows information to be kept and manipulated in short-term memory long enough to analyze, manipulate or take action upon it. Working memory is also linked to processing speed which explains why students with Autism Spectrum Disorder (ASD) struggle to keep and process information quickly (Assouline, Foley-Nicpon, & Dockery, 2012). Inhibitory control involves functions such as the suppression of attention to outside influences, not reacting to impulsive behaviors and the ability to delay gratification (Miyake et al., 2000; Senn, Espy, & Kaufmann, 2004; Zelazo et al., 2016). These skills, in combination, allow individuals the ability to pay attention, be open to new ways of doing things, sit still, and follow the rules all of which are critical abilities for students in school (Zelazo et al., 2016).

Numerous longitudinal studies have established a direct correlation between competent executive functioning and academic achievement in school (Espy et al., 2004; McClelland et al.,

2007; Mischel, Shoda, & Peake, 1988; Zelazo et al., 2016). For twice-exceptional students, while appearing “typical” and seemingly very intelligent, they face extreme challenges with executive functioning deficits which can make the academic and social requirements of school difficult (Baddeley & Hitch, 1974; Baum et al., 2017; Posner & DiGirolamo, 1975). When advanced verbal skills and knowledge become overshadowed by the inability to cope with the increasing pace, rigor and abstract thinking required in school due to EF deficits, these bright and intellectual students tend to become forgetful, inattentive, and apathetic towards school (Baum et al., 2017; Reis & McCoach, 2000).

While executive functioning impairments are not exclusive to twice-exceptional students, they tend to be significantly more impacted than students without a diagnosed disability due to the “hidden” nature of EF competences (Blijd-Hoogewys et al., 2014; Eylen et al., 2015; Happé, Booth, Charlton, & Hughes, 2006; Troyb et al., 2014, 2014; Zelazo et al., 2016). Over time, if not addressed, these deficits exacerbate their asynchronous development and widen the discrepancy between their abilities and their actual performance in school. Without early interventions to increase their executive functioning skills, gifted and learning-disabled students begin to underachieve in school (Bennett-Rappell & Northcote, 2016; D’Souza, 2014; Reis & McCoach, 2002; Reis & McCoach, 2000; Ryan & Coneybeare, 2013; Whitmore, 1980).

Underachievement among gifted students with learning disabilities is the result of a this discrepancy between what a student is capable of achieving and what the student actually achieves (Baum, Renzulli, & Hébert, 1995; Reis & McCoach, 2002; Snyder, Malin, Dent, & Linnenbrink-Garcia, 2014; Whitmore, 1980). A recent review of the research has determined three basic reasons for underachievement: (a) their giftedness is masked by an undiagnosed learning disability, as seen in the twice-exceptional population; (b) their school environment

does not match their individual strengths or interests, and (c) they suffer from low motivation, low self-regulation and low self-esteem (Reis & McCoach, 2002; Rubenstein, Siegle, Reis, McCoach, & Burton, 2012; Ryan & Coneybeare, 2013; Wang & Neihart, 2015a).

The unique combination of individualized characteristics exhibited by twice-exceptional students requires more than a one-size-fits-all intervention. Due to the complex and challenging nature of underachievement, investigations into interventions have yielded mixed results (Bennett-Rappell & Northcote, 2016; Emerick, 1992; Reis & McCoach, 2002; Rubenstein et al., 2012). However, research has established a few systematic interventions that have been demonstrated to reverse academic underachievement. First, is the relationship the student has with the teacher (Baum et al., 1995, 2017; Bennett-Rappell & Northcote, 2016; D'Souza, 2014; Reis & McCoach, 2002; Rimm, 1996; Rubenstein et al., 2012). In 1992, Emerick's study found that all participants believed that a specific teacher had the greatest influence on improving their underachieving behavior. When a student feels a teacher understands their uniqueness, believes in their abilities, and converses with them about their favorite topic, the relationship reassures the student that they are valued. Another intervention that has been shown to combat underachievement is to make school meaningful (Rubenstein et al., 2012). When learning is focused upon a student's strengths and interests (Bennett-Rappell & Northcote, 2016; Renzulli & Reis, 1985; Renzulli, 1978) it creates high levels of student engagement (Bennett-Rappell & Northcote, 2016; Landis & Reschly, 2013; Reis & McCoach, 2002).

In the absence of early interventions for executive functioning deficits, undesirable behaviors and academic challenges can continue into adulthood (Baum et al., 2017; Raver et al., 2011; U.S. Department of Education Office for Civil Rights, 2014; Zelazo et al., 2016). Through broader awareness and professional learning, educators are more likely to notice giftedness

among diverse students (Neumeister, Adams, Pierce, Cassady, & Dixon, 2007) and begin to improve their educational and social outcomes.

### **Teacher Training**

For educators, having a twice-exceptional student can be perplexing due to their asynchronous academic and social profile (Andronaco et al., 2014; Baum, Cooper, & Neu, 2001; Baum et al., 2017; McCoach et al., 2001; Neville, Piechowski, & Tolan, 2013; Reis et al., 2014). Various studies have analyzed teachers perceptions of gifted students (Greene, 2003) and of students with learning disabilities (Bearn & Smith, 1998), however, little research exists on teachers perceptions of those who fit into both categories (Barnard-Brak et al., 2015; Costis, 2016; Reis & McCoach, 2000). Contributing to educator uncertainty is the lack of general education teacher training programs that incorporate working with students with multiple exceptionalities. Conversely, special education teacher training programs typically focus on remediation of deficits and rather than the potential gifts and talents of students with learning disabilities (Gallagher, 2015; Kennedy, Higgins, & Pierce, 2002; Ronksley-Pavia, 2015). Given the lack of pre-service teacher training, it is critical that ongoing professional development include training in areas of giftedness as well as learning disabilities to ensure all education professionals have the skills to make identification referrals of twice-exceptionality (Amend & Peters, 2015; Costis, 2016).

Educators face real pedagogical challenges attempting to meet the educational, social and behavioral needs of students with dual exceptionalities. For many teachers, the adoption and implementation of new instructional practices is a complex process which, to be effective, will require a fundamental shift in teaching style (Fry, 2015; Leggett et al., 2010; McCoach et al., 2001; Rowe et al., 2013). Shifting practices through capacity building is an emotionally

demanding process heavily influenced by a teachers' purpose and personal and professional identity (Fullan, 2016; Fullan & Quinn, 2016; Saunders, 2013). To improve instructional and pedagogical practices, Fullan (2016) points to four requirements; building a common language and knowledge base, identifying proven research-based pedagogical practices, building capacity through deep learning, and having a clear understanding of the potential impact on student outcomes. It is clear that meeting the needs of twice-exceptional students requires teachers to continuously improve and innovate classroom strategies (Fullan & Quinn, 2016).

However, research indicates that teacher training and professional development, in and of itself, does not bring about long-lasting pedagogical change. Teacher mindset also plays a significant role in reforming instructional practices. Bailey & Rose (2011) conducted a study to explore the role of teachers' mindsets and found that teachers with a more inclusive, open mindset were more able to see the highs and lows in individual students' abilities and provide instruction outside the norm (Allen, 2017; Bailey & Rose, 2011; Berman et al., 2012; Miller, 2009; Rowe et al., 2013; Willard-Holt et al., 2013; Wormald et al., 2015). Teachers with an inclusive mindset tend to actively seek out professional development opportunities and engage in self-efficacious opportunities to improve their craft (Fraser-Seeto, Howard, & Woodcock, 2015). Additionally, teachers' mindset has a significant influence on their willingness to see past a disability label to refer students with disabilities for gifted programs (Bianco, 2005; Bianco & Leech, 2010b).

Exacerbating the concerns over teacher awareness and under-identification is the lack of training and professional development on the topic of twice-exceptionality in education (Bailey & Rose, 2011; Baldwin, Baum, et al., 2015; Berman et al., 2012; Reid & Horváthová, 2016). As with any unique population of students, successful outcomes are highly dependent upon



teachers' specialized training and continuing professional development (Baldwin et al., 2015).

Recent research reveals that with basic training, teachers are able to develop a basic working knowledge of the main characteristics of twice-exceptionality and are more able and likely to provide an environment that fosters their success (Rubenstein et al., 2015; Wright, 2016).

However without basic training, teachers are less likely to identify, recommend or refer students with disabilities for gifted programming due to the belief in a more traditional view of giftedness that does not include characteristics of diversity or dual-exceptionalities (Miller, 2009). With information and collaboration, teacher awareness will increase, permitting conscious reflection of misconceptions and biases regarding gifted and learning disabled students (Allen, 2017).

General education teachers' lack of training about either end of the exceptionality spectrum contributes to their unawareness and often times denial of the existence of coexisting exceptionalities, while special education teachers are trained to remediate deficits, but not necessarily to identify and capitalize upon students' strengths and individual differences (Reis et al., 2014; Willard-Holt et al., 2013). Given their complex display of strengths and weaknesses, abilities and disabilities, twice-exceptional students' academic and social profiles are elusive for the untrained educator to determine (Reis et al., 2014). This complexity has led to inaccurate and negative perceptions of disabilities by teachers who focus on remediation of deficits (Baldwin et al., 2015; Reis et al., 2014; Ronksley-Pavia, 2015; Rubenstein et al., 2013). When concomitant exceptionalities exist within one child, educators tend to focus on the disability rather than the gifted potential behind the disability (Bianco & Leech, 2010b; Reis et al., 2014).

### **Summary**

The lack of research on twice-exceptionality stems from a historical lack of communication between special education and gifted education. For decades, research

conducted with these populations of students had been conducted in isolation. This left many in the education community unaware that students with learning disabilities could be gifted and that gifted students could also be challenged with various learning disabilities. However, within the last two decades, mounting research has begun to recognize that ability and disability can exist simultaneously. As a consequence, the concept of dual exceptionalities began to appear more frequently in research and was subsequently discussed and debated through legislative actions and national publications.

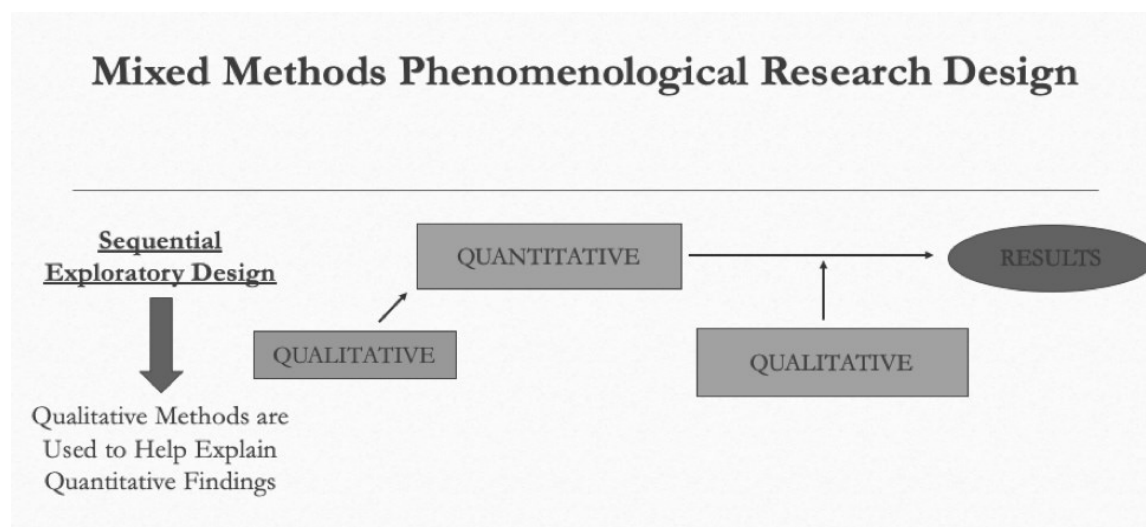
However, despite the growing awareness and improving identification practices, new research and knowledge has not yet been appropriately disseminated to pre-service teacher training programs or through ongoing professional development in schools leaving many educators uninformed as to how to meet the unique academic and social needs of this population of students. Twice-exceptionality poses unique challenges for teachers and without specific training on the intersection of exceptionalities, teachers face real pedagogical challenges attempting to meet their needs.

## CHAPTER 3: METHODOLOGY

The literature review outlined the complex nature of twice-exceptionality exacerbated by the dearth of empirical literature. The researcher's goal was to contribute to the growing literature on the topic by providing useful data to explain and understand the factors that contribute to teacher's awareness of twice-exceptionality. Chapter 3 summarizes the specific methodology, sampling procedures, research design and instrumentation used for this study. This chapter includes detailed descriptions of the survey instrument, pre- and post-interview protocols followed by a discussion of the data collection procedures, statistical analyses, and measures taken to ensure the validity and reliability of the data.

### **Research Design**

This study used a mixed methods phenomenological research design (MMPR) as the structure of inquiry. The research design follows a sequential exploratory design (see Figure 2) described by Creswell, Plano Clark, Gutmann and Hanson (2005) and Lochmiller and Lester (2017), using quantitative findings as the foundation for the qualitative semi-structured interviews. This quantitative-leading methodology allows for a more comprehensive and diverse exploration of the phenomenon of twice-exceptionality from the divergent viewpoints of teachers and parents (Ivankova, Creswell, & Stick, 2006; Lochmiller & Lester, 2017; Venkatesh, Brown, & Bala, 2013).



*Figure 2.* Sequential exploratory design chart used for data collection and analysis.

### Sampling Procedures

For the quantitative phase of this study, the researcher used convenience sampling to select teacher participants from two public school districts and a non-public special education school in Southern California. The researcher has been employed as a teacher in one of the surveyed public-school districts for 23 years. The researcher also selected parent participants for two primary purposes (a) for a pilot study which allowed for the initial development of the survey for teacher respondents (b) for interviews to ensure relevance to the research purpose. The researcher sought the opinion of parents before creating the research instrument because of their firsthand knowledge and experience. Their suggestions and recommendations contributed to the design and content development of the survey. Parents were also selected for interviews as, based on her personal experience as the parent of a twice-exceptional child, the researcher deemed it critical to include their valuable opinions, firsthand experiences and deep understanding so as to minimize researcher bias.

The researcher used purposive sampling in selecting participants who may act as experts on the topic of study based on specific criteria (Lincoln & Guba, 1985; Lunenburg & Irby,

2008). The specific type of purposive sampling used to select parent respondents was homogeneous purposive sampling. In this strategy, a small, homogenous sample is selected to describe a specific subgroup in detail (Patton, 2002). This sampling procedure was utilized to ensure homogeneity within the sample of parents (Blair, Czaja, & Blair, 2014; Creswell & Poth, 2018; Maxwell, 2013) who, for the purpose of this study, had to be familiar with twice-exceptionality due to having a twice-exceptional child. This form of sampling was most It also allowed the researcher to collect the most relevant data that contributed to the gathering of in-depth perspectives on twice-exceptionality.

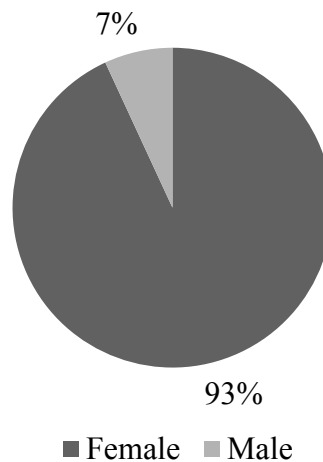
### **Recruitment of Respondents**

The researcher used convenience sampling to select teacher respondents from various schools within three Southern California school districts to participate in the survey. After receiving approval from the Department of Research and Evaluation of the public-school districts, the researcher contacted various administrators within the districts and was given permission to contact the teachers at their individual school sites. Consent forms were sent to teachers first, followed by the Teacher Awareness of Twice-exceptionality (TATE) survey which was distributed via email to teachers. The parent respondent acting as a consultant for the survey creation was recruited from a private school for twice-exceptional students located in Southern California. Parent participants for interviews were recruited from two social media groups based on two criteria: (a) having a twice-exceptional child, and (b) receiving Asperger's support.

### **Setting and Participants**

There were 58 surveys completed by educators in two school districts in Southern California. This section describes the demographic information of the teacher participant sample. The demographic variables include gender, age, highest degree earned, licensures or

credentials, years of teaching experience, type of school that the respondents work in, current teaching assignment, and population of students they work with the most. As shown in Figure 3, most of the survey respondents were female, 93% ( $n = 54$ ), which is representative of the female majority in the teaching profession.



*Figure 3. Gender of respondents ( $N = 58$ ).*

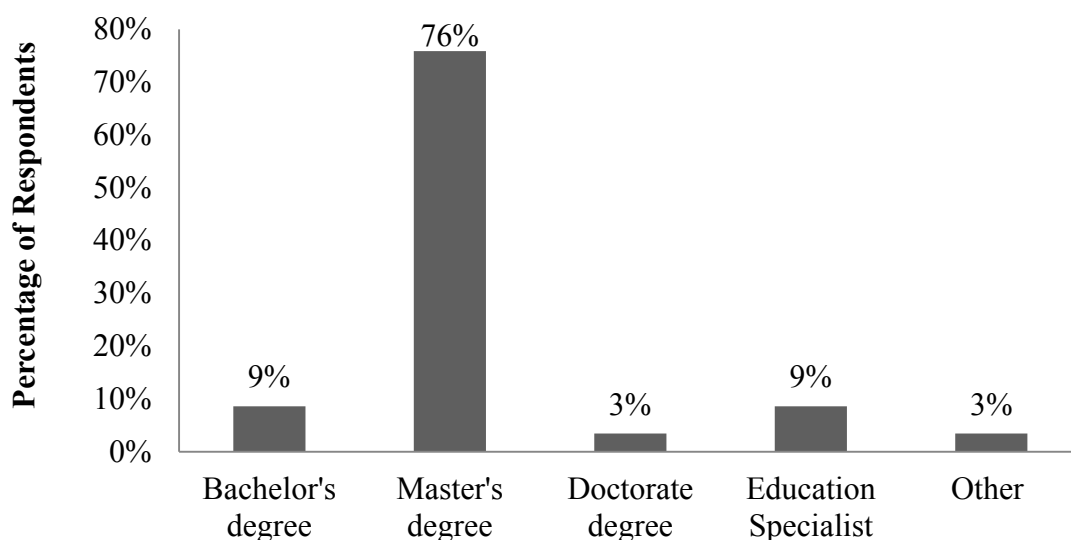
Table 1 presents the seven categories of respondents' age groups, their frequencies and percentages. There were no teacher respondents under 25 years old. The majority of teachers in the sample were aged 45 to 54 years old.

Table 1

*Frequency Data for Age Groups of Respondents ( $N = 58$ )*

| Age of Respondents | Percent | Frequency |
|--------------------|---------|-----------|
| Under 18           | 0%      | 0         |
| 18-24              | 0%      | 0         |
| 25-34              | 17%     | 10        |
| 35-44              | 28%     | 16        |
| 45-54              | 40%     | 23        |
| 55-64              | 12%     | 7         |
| 65+                | 3%      | 2         |

Figure 4 illustrates the highest level of education of the teacher respondents. The respondents' highest level of education, as reported in the survey, showed a higher percentage of teachers having Master of Arts degrees at 76% ( $n = 44$ ). Of the 58 respondents, 9% ( $n = 5$ ) had a Bachelor's, 9% ( $n = 5$ ) reported as Educational Specialist, and 3% ( $n = 2$ ) had a doctoral degree (see Figure 4). Under the category Other, one respondent reported "Teacher credential" and one respondent reported "in the process of master's degree".



*Figure 4.* Highest level of education of respondents ( $N = 58$ )

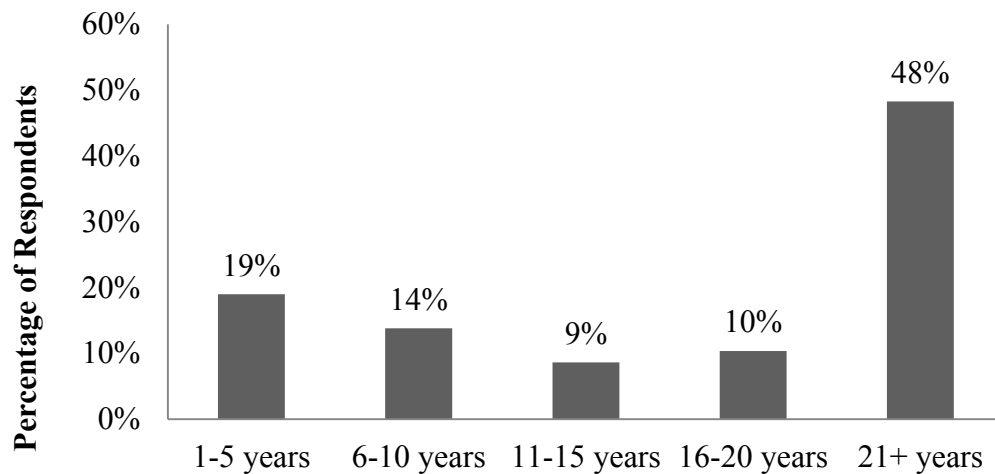
Table 2 specifies the licensures and/or credentials earned by the teacher respondents. The majority of respondents, 77% ( $n = 44$ ) reported having a general education teaching credential, 32% ( $n = 18$ ) reported having a special education credential, and 23% ( $n = 13$ ) reported to have an administrative credential. The remaining credentials and certifications are reported in Table 2.

Table 2

*Frequency Data for Licensures and/or Credentials of Respondents (N = 58)*

| Answer choices              | Percent | Frequency |
|-----------------------------|---------|-----------|
| General education           | 78%     | 45        |
| Special education           | 31%     | 18        |
| Administration              | 24%     | 14        |
| Gifted education specialist | 12%     | 7         |
| Other                       | 5%      | 3         |
| Speech language pathologist | 2%      | 1         |
| School counselor            | 0%      | 0         |
| School psychologist         | 0%      | 0         |

Figure 5 indicates the number of years of teaching experience among the respondents. The majority of teacher respondents, 48% ( $n = 28$ ) indicated they had 21 or more years of teaching experience. The second largest group, 19% ( $n = 11$ ) reported the least amount of teaching experience, ranging between one to five years (see Figure 5).



*Figure 5. Number of years of teaching experience of respondents (N = 58).*

Table 3 reports the type of school in which the respondents were employed. The vast majority of respondents for this study, 78% ( $n = 45$ ) stated that they were employed in a public school having a low socio-economic status (SES). All respondents reported that they were



employed in a non-public special education school while 9% percent ( $n = 5$ ) chose other (Table 3).

Table 3

*Frequency Data of Type of School in Which Respondents Are Employed (N = 58)*

| Answer choices             | Percent | Frequency |
|----------------------------|---------|-----------|
| Public school (low SES)    | 78%     | 45        |
| Other                      | 9%      | 5         |
| Public school (middle SES) | 7%      | 3         |
| Public school (high SES)   | 3%      | 2         |
| Private/parochial school   | 3%      | 2         |
| Public charter school      | 0%      | 0         |
| Higher education           | 0%      | 0         |

Figure 6 shows the respondents' current teaching assignment or grade level taught. Of the 58 respondents, 22% ( $n = 13$ ) indicated they were education specialists. Fourteen percent ( $n = 8$ ) indicated other as their response. These eight respondents specified their educational roles: five worked as academic or instructional coaches, one was a speech and language pathologist, one indicated a 4/5 combo, and one reported K-2 mild/moderate as their current teaching assignments (see Figure 6).

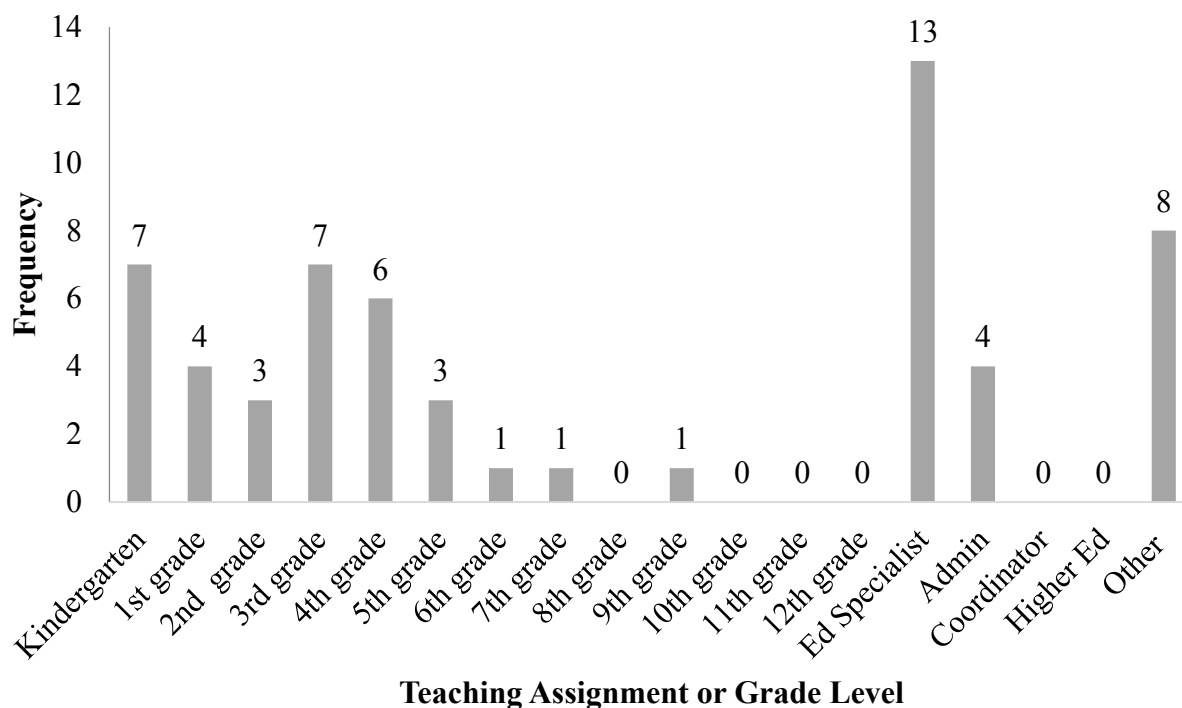


Figure 6. Respondents' current teaching assignment ( $N = 58$ ).

Figure 7 shows the population of students the respondents worked with the most. Figure 7 indicates that most of the respondents, 66% ( $n = 37$ ) worked with "typical" students. Only two respondents indicated working with twice-exceptional students.

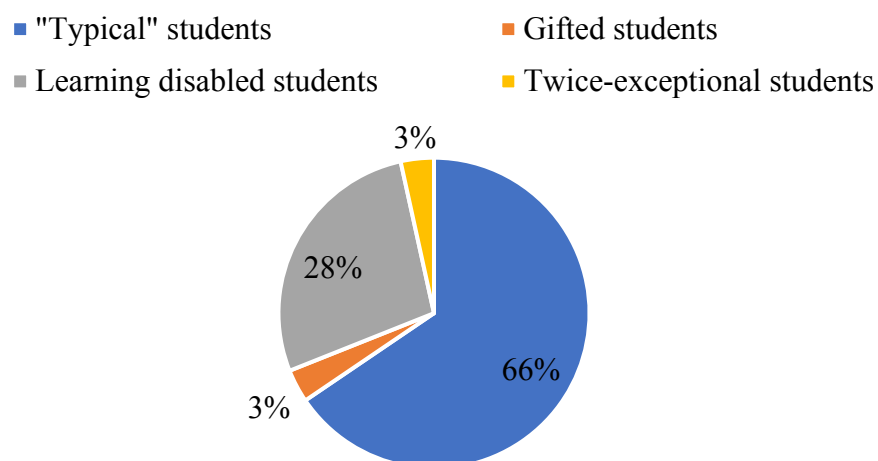


Figure 7. Population of students that teachers worked with the most ( $N = 58$ )

## **Instrumentation and Measures**

The purpose of this study was to examine teachers' awareness, knowledge and training about twice-exceptionality. Similar constructs were examined through the lens of parents of twice-exceptional children for additional insights and validation of teacher perspectives. Data was gathered using three methods as described in the next few sections: a preliminary consultation with a parent of a twice-exceptional child to get input and recommendations for the teacher survey, a 40-item electronic Teacher Awareness of Twice-Exceptionality (TATE) survey on SurveyMonkey (see Appendix A), followed by semi-structured interviews with parents of twice-exceptional children (see Appendix B). The researcher created the quantitative instrument for this study based upon other surveys in the field of twice-exceptionality (Foley-Nicpon et al. , 2013; Hayes, 2014; Leggett, Shea, & Leggett, 2011; Wright, 2016).

### **Survey**

The survey instrument included open-ended and closed-ended questions, five-point Likert-type scale questions along with seven demographic data questions to gather information about the background of the respondents such as their current credentials, the population of students they currently work with, the number of years of teaching experience they have, and the grade they teach. The quantitative survey was used to identify the relationships between the variables of teacher awareness, knowledge and training. The following list exemplifies some of the items on the survey instrument.

1. Do you know any twice-exceptional children?
2. Do you believe the term "twice-exceptional" is understood by the general population?
3. Do you believe gifts and challenges can be present in the same individual?

4. Do you agree that teachers and other professionals in schools have appropriate criteria and methods for determining which students demonstrate the coexistence of gifts and disabling conditions? Please elaborate.
5. How confident are you that your current understanding of and experience with twice-exceptional students enables you to make appropriate evaluation referrals of twice-exceptional students?
6. How adequate do you feel your training in twice-exceptional education has been?
7. Please rank in order from one to six the following factors that you think should be considered in making appropriate referrals for the evaluation of twice-exceptionality? (behavioral difficulties in the classroom, parental concerns, peer relationships, performance on class tests, performance on class work, performance on standardized achievement tests).

To increase the validity and reliability of the survey instrument, the researcher utilized a parent as a consultant. The consultation involved an informal discussion to gather opinions, suggestions and recommendations for modifications to be made as well as survey items to include or delete in the teacher survey.

### **Interview**

Participant interviews are intrinsic to phenomenological research, requiring that the researcher be the primary instrument for data collection and analysis (Merriam, 2009; Seidman, 2006). The qualitative parent interviews followed a phenomenological approach that were informal and interactive, eliciting personal accounts and experiences as they came when they learned that their child was twice-exceptional, and throughout their child's years in school. The interviews also explored parents' expectations of the outcome of the teacher survey along with

how the teacher respondent's data reflects their experiences as a parent of a twice-exceptional child. The qualitative interviews additionally aimed at promoting understanding about and appreciation of the real-world ramifications of teacher awareness and knowledge as experienced through the parents of twice-exceptional children. Did teachers' awareness, knowledge and training of twice-exceptionality meet or differ from what they were expecting? During the interviews, parents were encouraged to compare the data against their own lived experiences with their child's education and social-emotional needs in school (Seidman, 2006).

One parent interview was conducted in person at a location specified by the participant and the remaining four interviews were conducted via the phone. All interviews were recorded using the researcher's mobile phone. They began with a brief conversation during which mutual commonalities were shared as parents of twice-exceptional children. This approach served as a basis to establish and build rapport with the participants (Creswell & Poth, 2018). The researcher encouraged the participants to express their perceptions and experiences freely and decreased interview times by incorporating the strategic use of prompts and probes to elicit additional information or to clarify questions as needed.

The following list provides a few examples of the open-ended interview questions which are presented in its entirety in Appendix B:

1. What have been your experiences with schooling your twice-exceptional child?
2. What have been your experiences advocating for your twice-exceptional child?
3. How do the results of the teacher survey reflect your experiences with educating your twice-exceptional child?
4. What have been your experiences with teacher awareness, knowledge and training of twice-exceptionality?

5. What do you want people outside the community to understand about twice-exceptional children?
6. What are your biggest parental hopes and fears? (Hayes, 2014, p. 281)

### **Reliability**

Reliability measures for the quantitative teacher survey included measures for stability and consistency. Survey items were gathered from prior surveys that had already been tested for reliability (Foley-Nicpon et al., 2013; Hayes, 2014; Leggett, Shea, & Leggett, 2011; Wright, 2016) and measured for accuracy, authenticity and trustworthiness (Golafshani, 2003; Maxwell, 2013; Venkatesh et al., 2013). For the quantitative open-ended survey questions, the researcher used SurveyMonkey's in-built features for the tagging and coding of open-ended response items along with inter-rater reliability techniques to increase the reliability of the open-ended responses (Creswell & Poth, 2018).

The data was collected and analyzed in multiple phases with the integration of various measures of reliability. First, the researcher established a relationship with parents at the private school for twice-exceptional students (Englander, 2012; Seidman, 2006) and gained the trust of the participants. Second, the researcher disclosed and documented all potential biases. Third, the researcher maintained accurate records throughout the research process with consistent and detailed note-taking. All in-depth interviews were recorded using the researchers' mobile phone and then systematically transcribed using NVivo qualitative software program. The NVivo analysis tools provided another layer of reliability for transcription and coding consistency.

Having sole responsibility for data collection, the researcher was committed to being as transparent as possible about perceived and potentially unforeseen biases during the data collection process. All information including descriptions of the research process, field notes,

and interview transcripts were collected and stored electronically. The researcher used bracketing techniques throughout the research process through a reflective journal of experiences, thoughts, and feelings which monitored and controlled biases and assumptions (Creswell & Poth, 2018; Wang & Neihart, 2015a). Reliability was further promoted by revisiting and reviewing the coding of the interview transcripts several times as necessary during the data analysis process.

### **Validity**

Various strategies were used in this study to ensure the validity of the data. First, an exhaustive review of the literature was conducted prior to developing the survey instrument. From the review of literature, it was determined that the survey would incorporate a selection of previous survey questions found on the topic of teachers' perceptions and awareness of twice-exceptionality (Foley-Nicpon et al., 2013; Hayes, 2014; Leggett, Shea, & Leggett, 2011; Wright, 2016). The survey questions were aggregated and modified to address the constructs under study in this research. There were both open-ended and closed-ended questions regarding teacher awareness, knowledge, experiences, training and demographic information. After the initial survey was developed, the researcher consulted with a parent participant for recommendations and suggestions about the survey items, drawing upon their experience and knowledge. Their expertise strengthened the validity of the survey instrument by validating the questions aimed to collect information about the dimensions of the constructs under study; teacher awareness, knowledge and training about twice-exceptionality.

Due to the inherent ambiguity, potential biases and subjectivity in the interview process, information gathered from qualitative research is not as easily validated (Seidman, 2006; Venkatesh et al., 2013). To address these ambiguities, the researcher provided the reader with

rich, thick descriptions by using strong action verbs, direct quotes of participants and connecting the bigger picture of the research topic to participants' lives (Creswell & Poth, 2018). This was accomplished through precise reporting and transcriptions of interviews which included how the quantitative data connected and provided meaning to the parents' experiences educating their twice-exceptional child.

As another measure of validity, bracketing was used by the researcher (Blair et al., 2014; Chan, Fung, & Chien, 2013). As a parent of a twice-exceptional child, it was necessary for the researcher to bracket her personal biases, subjectivities, beliefs and experiences as an essential aspect of validation for this study (Chan et al., 2013; Creswell & Poth, 2018). Continuous identification and monitoring of biases occurred throughout the data collection and analysis phases. Through checking, confirming and verifying during the data collection and analysis phases, this study was able to maintain and ensure the rigor of the data (Morse, Barrett, Mayan, Olson, & Spiers, 2002).

### **Data Analysis**

This study used a mixed methods phenomenological research design (MMPR) as the structure of inquiry which allowed for a more comprehensive and diverse exploration of the phenomenon of twice-exceptionality (see Figure 8). The quantitative data collected for this study included a mix of different types of questions, closed-ended questions and Likert-type responses, to provide a clear understanding of teacher awareness, knowledge, and training. Data analysis began with a critical analysis which explored the trends, patterns, and relationships in the data (Lochmiller & Lester, 2017). Preliminary quantitative analysis relied heavily on analytical tools embedded in the SurveyMonkey software. To best understand the data, the researcher relied on frequencies, as suggested by Lochmiller and Lester (2017), as the simplest



way to identify how the data was distributed. After all the survey responses had been reviewed and analyzed using SurveyMonkey, the researcher imported all quantitative responses to Microsoft Excel where graphs and tables were created to visually represent the data.

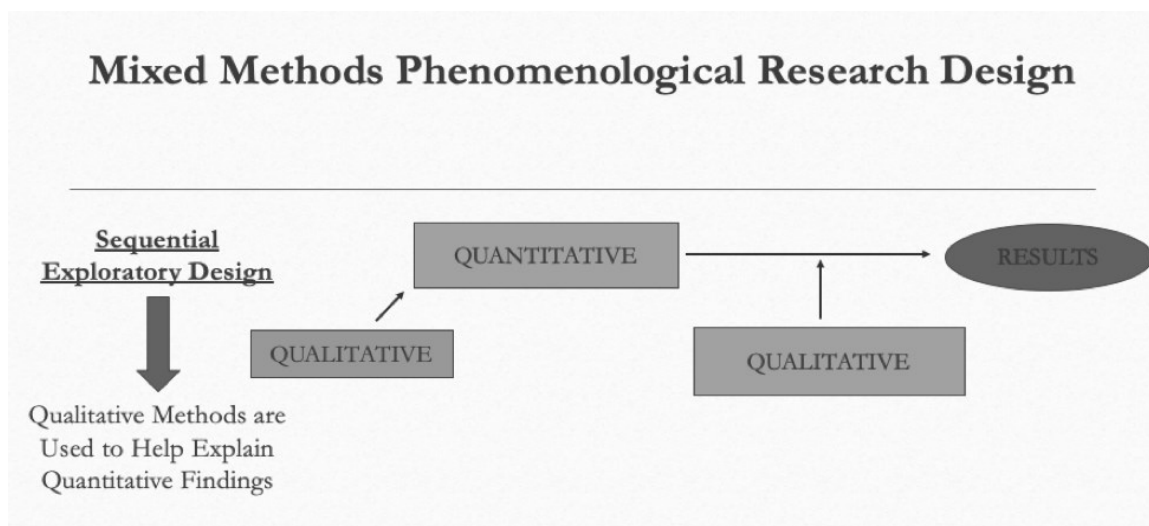


Figure 8. Sequential exploratory design chart used for data collection and analysis.

According to Creswell and Poth (2013), qualitative data analysis in a phenomenological study begins with identifying a phenomenon of “serious interest” to the researcher (p. 77). The goal of the qualitative data analysis for this study was to understand the perceptions and experiences of parents based upon data analysis of the interviews. As a parent of a twice-exceptional child and an educator, the researcher has deeply personal experiences and connections to the topic under consideration in this study. The researcher thus used a phenomenological approach as a pathway for creating deeper learning and transformation of awareness and consciousness about the education of twice-exceptional students (Creswell & Poth, 2013). However, researchers caution that one of the challenges of this approach is the ability to set aside any preconceived notions, personal experiences, biases, and to take on a fresh perspective on the phenomenon (Creswell & Poth, 2013; Wimpenny et al., 2000). One way the researcher ensured neutrality was by bracketing her personal experiences and assumptions

systematically through the continuous journaling and memoing her opinions and thoughts during the data collection phase (Creswell & Poth, 2013).

Since research in the field of twice-exceptionality is new, finding individuals who have all experienced the phenomenon was challenging. However, the researcher was able to recruit parent participants based upon the criteria of twice-exceptionality through two social media groups. First, the audio recordings of the five semi-structured parent interviews were transcribed. Interview 1 audio file was sent to the online service Rev.com for transcription while the remaining four interviews were transcribed using NVivo's transcription service.

This study used NVivo qualitative software to organize, code, and query the data to identify commonalities. During the initial readings of the interview transcripts, the researcher took detailed notes and memos of impressions, perceptions and reflections (Creswell & Poth, 2013; Maxwell, 2013). From these initial readings, the researcher began creating categories of smaller data through the coding process. The researcher critically analyzed the data to determine the most meaningful and relevant codes that would get to the core of the participants' experiences and best address the purposes of the study (Creswell & Poth, 2013). The coding process resulted in thirteen initial codes which were reduced and combined into themes that corresponded to each of the research questions for this study.

The final step in data analysis was the reporting of the lived experiences of the parent participants (Creswell & Poth, 2013). The structural descriptions explored how the phenomenon of twice-exceptionality affects parents and their children but also details how the setting and context of the educational system affect teachers' awareness, knowledge and training about twice-exceptionality. For this study, the connections between the quantitative constructs of awareness, knowledge and training of twice-exceptionality among teacher respondents were

linked to the qualitative data interviews with the parent participants. Through these connections, the researcher was able to deepen, enrich, enliven, and make the data more robust (Jick, 1979; Onwuegbuzie & Leech, 2006).

### **Limitations**

There were limitations to the current research study. First, as a parent of a twice-exceptional child, this study was a labor of love and an extremely personal journey of exploration, which may introduce bias into the research. The researcher has accounted for any potential bias by bracketing herself out of the study and fully disclosing her lived experiences as the parent of a twice-exceptional child. A second limitation was the lack of diversity among the parents who were interviewed. Due to the lack of appropriate identification of twice-exceptional students in public schools, qualitative interviews were conducted with parents who were members of twice-exceptional parent supports groups or acquaintances of the researcher through her work as a teacher. Future studies could provide a more comprehensive picture of the barriers and obstacles experienced by parents including those that come from economically disadvantaged and culturally diverse backgrounds by recruiting parents from a variety of schools.

### **Delimitations**

This study was delimited to public school teachers; teachers from private schools for twice-exceptional students were excluded. The teacher awareness survey was intended to measure the awareness, knowledge and training of teachers who represent the majority of public-school teachers and who have not received any direct, specialized training for instruction with twice-exceptional students. The administration of the teacher survey was delimited to three school districts; thus, the findings of this study may not be generalized to other schools.

Qualitative analysis and discussion of the teacher survey data was only conducted with parents of twice-exceptional children at the private 2e school.

### **Ethical Issues**

This study was approved by Concordia University Irvine's Institutional Review Board. Given that the researcher is employed with the school district where the quantitative surveys were administered, district-level access to teachers was sought from and granted by the Department of Research and Evaluation with the stipulation that the study results be shared with the district for the purposes of staff development and program improvement. The email request for participation in the online teacher survey was distributed by the school administration, which may give rise to ethical concerns as teachers may have felt compelled to answer it. Furthermore, due to the nature of the survey questions, some teachers may have felt uneasy or hesitant for fear that their knowledge or abilities as an educator may be called into question. To mitigate these fears, the researcher assured teachers that the site administration will not have access to the data collected. Prior to the survey distribution, teacher participants were informed by email that participation was voluntary, anonymous and that there were no repercussions for failure to participate in or complete the survey. The researcher also sent a follow-up email to all potential teacher participants, reiterating the purpose and intent of the survey, and emphasizing that anonymity of teacher, parent, school and district information would be maintained.

Using SurveyMonkey for the quantitative survey instrument involves a degree of risk from data interception by third parties, however, SurveyMonkey software reduces this risk to a minimum. The confidentiality of the participants who take the survey was safeguarded using SurveyMonkey which uses encryption technologies of data over networks to increase protection of the data. SurveyMonkey has an integrated comprehensive privacy policy which ensures that

the data is owned by the survey collector.

The researcher informed teacher respondents that the survey had been pilot-tested and proposed a reliable time estimate for survey completion to reduce potential concerns about the amount of time that it would take to participate. The online survey included the option for withdrawing from the research at any point by clicking a box. The open-ended responses allowed for a “no response” or “not sure” option to allow participants the opportunity to opt out of a question.

As a parent of a twice-exceptional child and an educator, the researcher has taken into consideration all potential measures to minimize the possible effects of presumed authority and biases regarding the research topic. Prior to beginning the qualitative interviews with parent participants, the researcher addressed all personal concerns regarding confidentiality and potential fears about information being kept confidential. All identifying information was excluded from reports of the current research by using pseudonyms to refer to participants. All journals, researcher notes, reflections, recorded interviews, and printed survey data were kept secure at the researcher’s home on the researcher’s password protected desktop computer.

Every attempt was also made to make parent participants feel comfortable and minimize risks that may be associated with the current study. Parents may experience emotional discomfort when providing personal information regarding their child’s abilities or disabilities and the difficulties they have experienced. Parent participants were thus informed at the beginning of the interview about the option of withdrawing from the interview at any time and of refraining from answering questions that they may not be comfortable with. Parents may also experience emotional discomfort when discussing the realities of raising an atypical child, hence the researcher also reassured potential parent participants that their in-depth interviews would be

conducted individually.

### **Summary**

This mixed methods phenomenological study examined the awareness, knowledge and training of twice-exceptionality among teachers. It utilized a sequential exploratory research design to ensure a comprehensive and rigorous study. The teacher participants for this study were selected based upon the school district where they are employed using convenience sampling. The parent participants were selected using homogeneous purposive sampling, based upon their lived experiences and expertise being a parent of a twice-exceptional child. The data collection process incorporated a quantitative online teacher survey followed by semi-structured interviews with parent participants. Multiple measures of reliability and validity were used to increase the credibility of the research findings. The following chapter contains a discussion of the data.

## CHAPTER 4: RESULTS

The intent of this study was to investigate the depth and breadth of teacher awareness, knowledge, and training of twice-exceptionality and to explore those findings through the lived experiences of parents of twice-exceptional children. The purpose of the study was achieved through an examination of the results of quantitative and open-ended qualitative responses to the Teachers' Awareness of Twice-Exceptionality (TATE) survey instrument along with qualitative interviews with parents of twice-exceptional children. Results of the analyses of the data presented in this chapter are organized by research question.

### **Research Findings**

This study utilized a phenomenological mixed methods sequential, exploratory design using quantitative data to help explore and explain the qualitative findings (Lochmiller & Lester, 2017). Fifty-eight teachers and the administrators of three school districts took the Teacher Awareness of Twice-Exceptionality (TATE) survey addressing three primary factors: awareness, knowledge, and training of twice-exceptionality. The survey instrument consisted of 40 items including, closed-ended, open-ended, and Likert-type scale questions. The open-ended survey responses provided depth and perspective to the available knowledge and challenges associated with twice-exceptionality. The analyses for each research question is presented in the current chapter and organized into quantitative and qualitative subgroups.

### **Research Question 1**

Research Question 1 was: What factors influence teachers' awareness and training of twice-exceptionality? This question was primarily addressed by using in-built tools on SurveyMonkey to analyze participant responses to specific survey items using descriptive statistics. Excel was used to plot graphs to illustrate the percentage of respondents choosing

particular answer options.

### Quantitative Findings of Teacher Awareness

Factors that contribute to the respondent's awareness about twice-exceptionality were gleaned from the TATE survey, which examined the respondent's awareness and exposure to various populations of students. Figure 9 specified the respondents' interactions with children who have Autism/Asperger's syndrome. Figure 10 specified the respondents' interactions with children who are gifted and talented. Figure 11 illustrates the answers that respondents gave when asked if they knew any twice-exceptional children. Figure 12 represents the frequency of the respondents' personal or professional experiences with children; they believed to exhibit the profile of twice-exceptional.

Of the 58 respondents, 86% ( $n = 50$ ) reported that they knew a child with Autism/Asperger's syndrome personally (see Figure 9). It should be noted that 13% ( $n = 8$ ) of the respondents indicated that they had never known or were not sure if they had known a child with Autism/Asperger's syndrome.

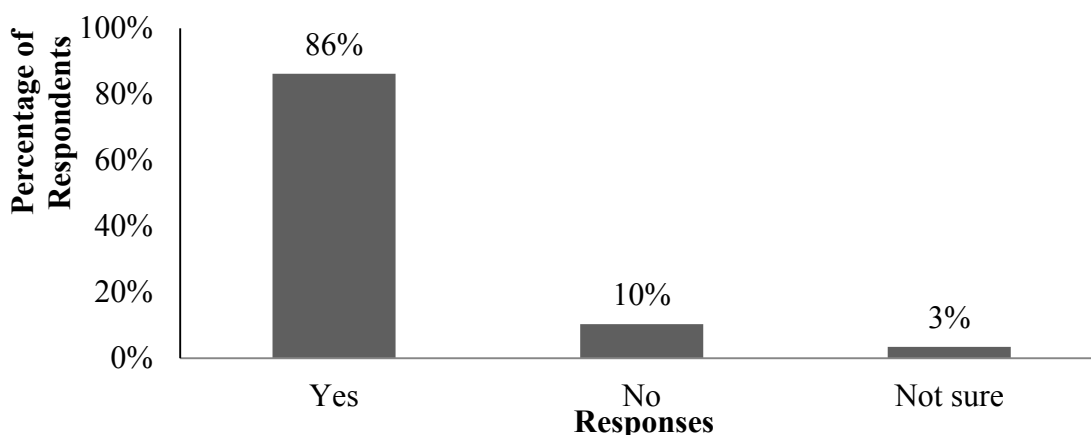


Figure 9. Respondents who know a child with Autism/Asperger's syndrome personally ( $N = 58$ ).

Figure 10 illustrates the responses that participants gave when asked if they knew any children who were gifted and talented. Ninety percent ( $n = 52$ ) reported that they knew a child



who was gifted and talented personally while 10% ( $n = 6$ ) shared that they either had not known or were not sure if they had known a child who was gifted and talented.

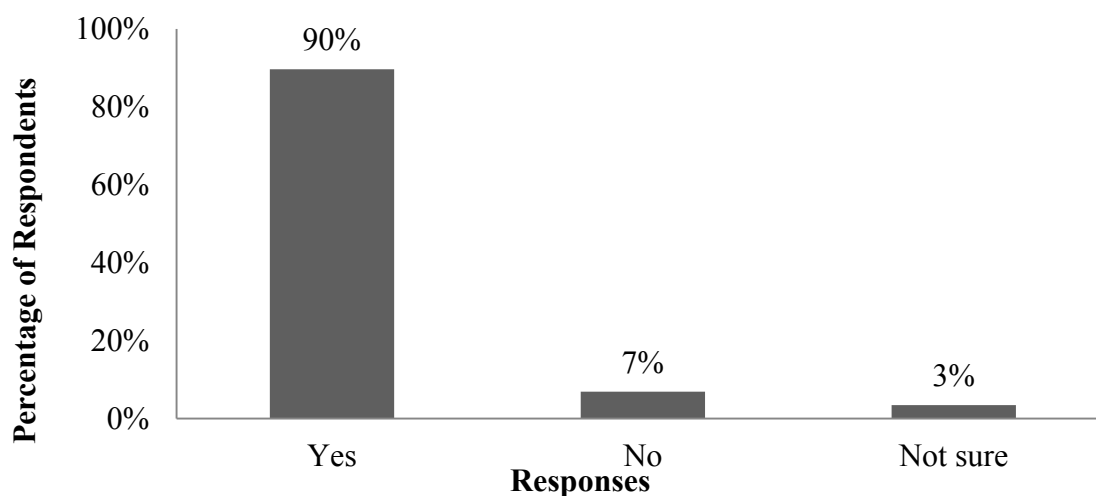


Figure 10. Respondents who had personally known a child who was gifted and talented ( $N = 58$ ).

Figure 11 illustrates that 69% ( $n = 40$ ) of the respondents believed they had known a child who was twice-exceptional. Thirty-one percent ( $n = 18$ ) replied that they were either not sure or had not known a student who was twice-exceptional.

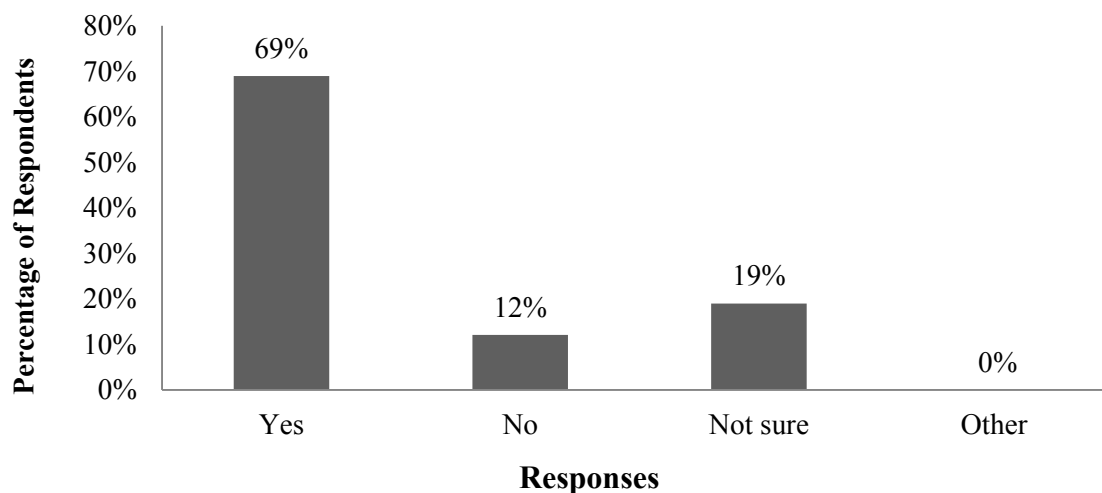
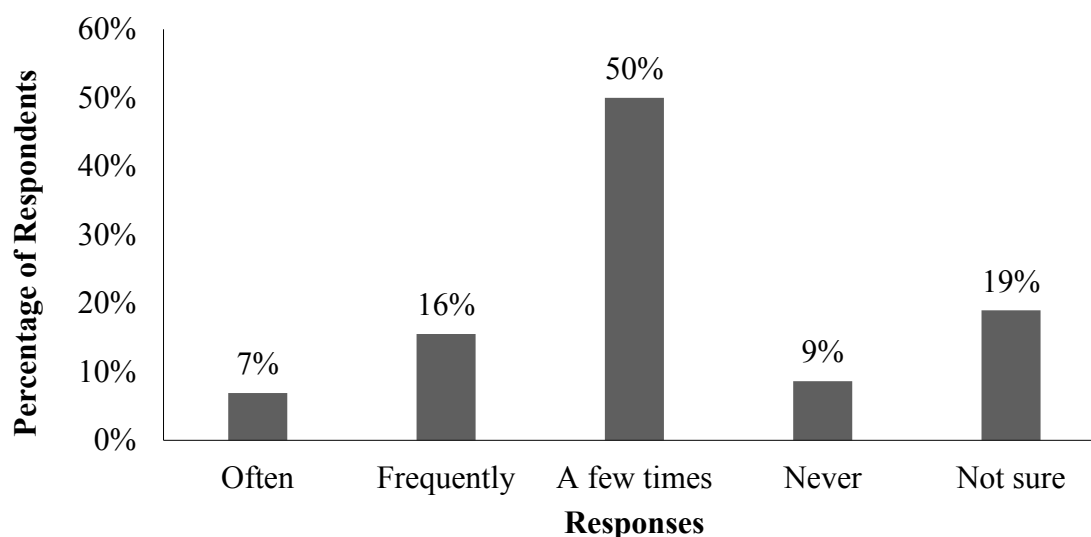


Figure 11. Bar graph showing respondents who believed they had known a twice-exceptional child ( $N = 58$ ).

Figure 12 illustrates the responses that the teacher respondents gave when they were

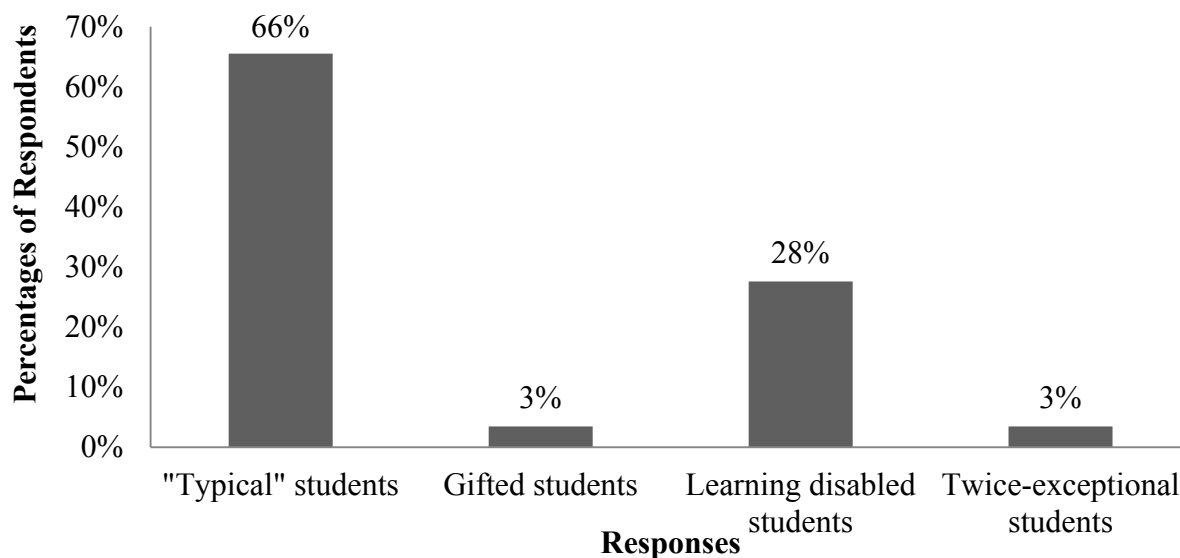
asked to indicate if they believed that they had encountered a student who had exhibited the profile of a twice-exceptional student in either their professional or personal experiences in the previous year. Of the 58 respondents, 23% ( $n = 15$ ) indicated that, in the last year, they believed that they had often or frequently encountered a twice-exceptional student, 28% ( $n = 16$ ) were either not sure or never had, and 50% ( $n = 29$ ) had encountered a twice-exceptional student a few times in the last year.



*Figure 12.* Bar graph representing respondents who believe they may have encountered a twice-exceptional student within the last year ( $N = 58$ ).

It was essential to determine the population of students that respondents worked with the most to gain a more comprehensive understanding of the awareness of teachers and their prior experiences with twice-exceptional students (see Figure 13). Of the 58 respondents, 66% ( $n = 38$ ) worked mostly with typical students, and 28% ( $n = 16$ ) worked mostly with learning-disabled students. However, only 3% ( $n = 2$ ) indicated that they worked mostly with gifted students, and 3% ( $n = 2$ ) worked mostly with twice-exceptional students. Of the two respondents who specified working with twice-exceptional students, one was a speech and language pathologist in a low SES school, and the other was an education specialist in a private school for

students with psychological or emotional needs.



*Figure 13.* Bar graph representing the population of students the respondents worked with the most ( $n = 58$ ).

The survey included five open-ended questions aimed at gathering qualitative data about teacher awareness. The first qualitative question asked respondents to provide a definition of twice-exceptionality (see Table 4). While there were many variations and interpretations of the definitions of twice-exceptionality, frequency data analysis indicated a few recurrent keywords which were further divided into two themes based upon the contrasting exceptionalities of giftedness and learning disabilities. Table 4 provides some examples of respondent definitions.

Table 4

*Respondents' Definitions of Twice-Exceptional (n = 53)*

| Respondents | Responses  |
|-------------|--|
| R1          | "Persons who have high knowledge or skill at least one area but may be limited by a disability in another area. They are often overlooked for services because they seem to "get by" without the extra assistance. However, with attention to both, these individuals flourish." |
| R3          | "An individual who struggles in one area and has a gift in another area."  |
| R4          | "A student who has strong abilities in certain areas, but their disability impedes them (social skills, behavior) from teachers seeing their true potential."  |
| R5          | "Students who exhibit GATE characteristics and are identified as a Gifted Learner as well and simultaneously have a specified learning disability."  |
| R8          | "Twice-exceptional students are those who demonstrate giftedness in one or more areas of cognitive capability but also demonstrate discrepancies between learning capacity and performance in one or more other areas."  |
| R10         | "Students with a disability in one of the eligible categories for special education in addition to having exceptional aptitude in a particular area such as mathematical reasoning or writing."  |

*Note.* R1 = respondent 1; R2 = respondent 2.

The frequencies of coded key words about the definitions of twice-exceptionality in participant responses are shown in Table 5. Seventy-six percent ( $n = 41$ ) of the definitions included the words gifted, gifted and talented, GATE, giftedness, high, and excels. Seventy-seven percent ( $n = 42$ ) of the definitions included the words learning disability, disability, special needs, needs, autism, deficits, and challenges (see Table 5).

Table 5

*Frequency of Words to Define Twice-Exceptionality (n = 53)*

| Key words   | Frequency | Percentage |
|---|-----------|------------|
| Gifted, giftedness, gifted and talented, GATE, high, excels                         | 41        | 76%        |
| Learning disability, disability, special needs, needs, Autism, deficits, challenges | 42        | 77%        |

Question 31 in the survey asked respondents what they believed were the top five

strengths of twice-exceptional students among 10 closed-ended response options. Descriptive statistics showed that 74% ( $n = 42$ ) of the respondents selected the two greatest strengths of twice-exceptional students as: the ability to grasp abstract concepts and imagination/creativity (see Table 6).

Table 6

*Close-Ended Frequency Data of Perceived Strengths of Twice-Exceptional Students ( $n = 57$ )*

| Strengths  | Frequency | Percentage |
|--|-----------|------------|
| Ability to grasp abstract concepts (deeper meaning/bigger picture) | 42        | 74%        |
| Imagination/Creativity   | 42        | 74%        |
| Extremely curious/Questioning                                      | 38        | 67%        |
| Advanced problem-solving and reasoning abilities                   | 32        | 56%        |
| Memory, recalling details and facts                                | 28        | 49%        |
| Advanced ideas and opinions  | 28        | 49%        |
| Special talent or consuming interest                               | 25        | 44%        |
| Superior vocabulary  | 24        | 42%        |
| Logical/Linear thinking  | 18        | 32%        |
| Oral reading fluency   | 0         | 0%         |

Question 32 asked respondents for the same information but in an open-ended response format. The most cited strengths were areas of interest and heightened abilities at 38% and 37% respectively (see Table 7). While imagination, curiosity and advanced problem-solving skills were chosen as top strengths when respondents were given close-ended response choices (see Table 6), they were cited at the lowest frequency in the open-ended format (see Table 7).

Table 7

*Open-Ended Frequency Data for Perceived Greatest Strengths of Twice-Exceptional Students**(n = 49)*

| Strengths          | Frequency | Percentage |
|--------------------|-----------|------------|
| Areas of interests | 19        | 38%        |
| Ability            | 18        | 37%        |
| Thinking           | 14        | 29%        |
| Memory             | 11        | 22%        |
| Creativity         | 9         | 19%        |
| Vocabulary         | 8         | 16%        |
| Imagination        | 4         | 9%         |
| Curiosity          | 4         | 9%         |
| Ideas              | 4         | 9%         |
| Problem-solving    | 3         | 7%         |

Teachers' awareness of twice-exceptional students' strengths must also include an understanding of the challenges or difficulties that can impact their success in school. In a closed-ended response format, Question 30, asked respondents to choose the top five challenges they believed affected twice-exceptional students in school (see Table 8). The data revealed that 69% ( $n = 40$ ) of the respondents reported poor social skills as the leading challenge facing twice-exceptional students in school, 66% ( $n = 38$ ) mentioned the discrepancy between verbal ability and academic performance, and 66% ( $n = 38$ ) wrote about cognitive inflexibility. The challenges that received the lowest response rates were immaturity compared to peers at 24% ( $n = 14$ ) and does poorly on timed tests at 22% ( $n = 13$ ).

Table 8

*Close-Ended Frequency Data for Perceived Challenges of Twice-Exceptional Students in School**(n = 58)*

| Challenges   | Frequency | Percent |
|--|-----------|---------|
| Poor social skills   | 40        | 69%     |
| Discrepancy between verbal ability and academic performance                    | 38        | 66%     |
| Cognitive inflexibility (inability to mentally shift gears in a timely manner) | 38        | 66%     |
| Poor organizational skills   | 32        | 55%     |
| Difficulty with change   | 32        | 55%     |
| Impulsivity  | 29        | 50%     |
| Frequently off-task  | 26        | 45%     |
| Difficulty completing simple tasks   | 24        | 41%     |
| Difficulty following multi-step directions                                     | 20        | 34%     |
| Immature compared to typical peers   | 14        | 24%     |
| Does poorly on timed tests   | 13        | 22%     |

The next open-ended survey question, Question 33, asked for similar information about the difficulties experienced by twice-exceptional students, this time in an open-ended format (see Table 9). Open-ended responses were coded for similar challenges that respondents had to choose from to answer Question 30, which facilitated comparison between responses given in the closed and open-ended formats. The difficulties mentioned with the highest frequency were poor social skills at 35% ( $n = 18$ ), cognitive inflexibility at 22% ( $n = 11$ ), frequently off-task behavior at 20% ( $n = 10$ ), and impulsivity at 19% ( $n = 10$ ). In both response formats, respondents agreed that social skill deficits were the greatest challenge facing twice-exceptional students in school.

Table 9

*Open-Ended Frequency Data for Perceived Greatest Difficulties of Twice-Exceptional Students**(n = 51)*

| Difficulties   | Frequency | Percent |
|--|-----------|---------|
| Poor social skills   | 18        | 35%     |
| Cognitive inflexibility (inability to mentally shift gears in a timely manner) | 11        | 22%     |
| Frequently off-task  | 10        | 20%     |
| Impulsivity  | 10        | 19%     |
| Difficulty completing simple tasks   | 9         | 18%     |
| Discrepancy between verbal ability and academic performance                    | 7         | 14%     |
| Immature compared to typical peers   | 7         | 13%     |
| Poor organizational skills   | 6         | 12%     |
| Difficulty following multi-step directions                                     | 5         | 10%     |
| Does poorly on timed tests   | 4         | 7%      |

The fourth open-ended survey question, Question 34, revealed the respondents' perceptions, beliefs, or thoughts about teacher awareness of twice-exceptionality (see Table 10). The responses were coded and categorized by frequency of occurrence. From the coded responses, the researcher generated three themes: awareness concerns, academic concerns, and behavior concerns. The most popular theme was awareness concerns, which was derived from responses stated by 69% ( $n = 33$ ) of teachers about their lack of awareness. Other codes used to create the awareness theme in decreasing order of percentage of occurrence were: they have misunderstandings about dual exceptionalities at 50% ( $n = 24$ ), the lack of training on twice-exceptionality in either their credentialing programs or from on-going professional development at 38% ( $n = 18$ ), and the concern for better identification protocols at 23% ( $n = 11$ ). The academic concerns theme was created from three codes. The first code, mentioned at 17% ( $n = 8$ ), highlighted the respondents' assertions for more classroom support. The second code, mentioned by 15% ( $n = 7$ ) of the respondents, revealed the need for differentiation strategies that



access twice-exceptional students' strengths. The third code was the need for resources to challenge their giftedness, which was highlighted by 10% ( $n = 5$ ) of the respondents. The last theme identified was behavior concerns. Ten percent ( $n = 5$ ) of the respondents stated that the negative behaviors of twice-exceptional students are a challenge for unaware teachers who may not understand the reasons behind the behaviors or know how to handle them in the classroom.

Table 10

*Respondents' Perceptions, Beliefs, or Thoughts Regarding Teacher Awareness of Twice-Exceptionality ( $n = 48$ )*

| Coded responses                           | Frequency | Percent |
|---|-----------|---------|
| Teachers are not aware                    | 33        | 69%     |
| Misunderstanding of dual exceptionalities | 24        | 50%     |
| No training                               | 18        | 38%     |
| Lack of information                       | 13        | 27%     |
| Need better identification protocols      | 11        | 23%     |
| Need classroom support                    | 8         | 17%     |
| Need differentiation to access strengths  | 7         | 15%     |
| Negative behaviors not understood         | 6         | 10%     |
| Need resources to challenge students      | 5         | 10%     |

Question 35 asked teachers what they believed were the most pressing challenges or obstacles facing educators when meeting the needs of twice-exceptional students in the classroom (see Table 11). Of the 49 responses, training and knowledge were cited by 73% ( $n = 36$ ) of the respondents as the most pressing challenge for educators in meeting the needs of twice-exceptional students. The second most pressing issue reported by 37% ( $n = 18$ ) of the respondents were meeting the needs of an increasingly heterogeneous student population. The third most cited issue at 24% ( $n = 12$ ) was the need to understanding how twice-exceptional students learn better. Other leading concerns in decreasingly order of frequency were large class sizes at 16% ( $n = 8$ ), time constraints at 14% ( $n = 7$ ), and curriculum resources at 14% ( $n = 7$ ).

Table 11

*Most Pressing Challenges Facing Educators Regarding Meeting the Needs of Twice-Exceptional Students in School (n = 49)*

| Frequency of responses                          | Frequency | Percent |
|---|-----------|---------|
| Lack of training and knowledge                  | 36        | 73%     |
| Meeting the needs of all students/heterogeneous | 18        | 37%     |
| Understanding 2e learning needs                 | 12        | 24%     |
| Class size                                      | 8         | 16%     |
| Time constraints                                | 7         | 14%     |
| Curriculum resources                            | 7         | 14%     |
| Identification protocols                        | 6         | 12%     |
| Support   | 6         | 12%     |
| Behavior/classroom management                   | 4         | 8%      |
| More staff needed                               | 3         | 6%      |
| Demands of the job                              | 2         | 4%      |
| Parent advocacy/rights                          | 1         | 2%      |

### **Teacher Awareness Based on Parental Interviews: Qualitative**

Qualitative information about teacher awareness was also collected through interviews with parents of twice-exceptional children. The interviews consisted of nine core questions designed to explore and promote a greater understanding of the lived experiences of parent participants about their child's experiences in school. Table 12 displays the demographic data of the parent participants ( $n = 5$ ) for this study. The parent participants' highest educational qualifications ranged from a bachelor's to a doctoral degree: three participants held a bachelor's degree, one held a master's degree and one a doctoral degree.

Table 12

*Demographic Data of Parent Participants (n = 5)*

| Parent participant | Age group | Level of education                   | Residency       | Affiliation                                |
|--------------------|-----------|--------------------------------------|-----------------|--|
| P1                 | 50-60     | Bachelor's degree                    | California      | OC Asperger's Support Group                |
| P2                 | 40-50     | Master's degree in Special Education | California      | Friend of a colleague                      |
| P3                 | 40-50     | Bachelor's degree                    | Washington D.C. | Twice Exceptional/2E Network International |
| P4                 | 40-50     | Doctorate                            | California      | Professor at Concordia University Irvine   |
| P5                 | 40-50     | Bachelor's degree                    | California      | OC Asperger's Support Group                |

*Note.* P1 to P5 = Parent 1 to Parent 5.

The researcher asked parents to describe their experiences with teacher awareness of twice-exceptionality (see Table 13). As displayed in Table 13, in response to being asked about teacher awareness, Parent 1 (P1) responded, “I honestly don’t think they know what it [twice-exceptional] means.” Parent 3 (P3) stated that her child had “attended a private school in China that was aware of her son’s dual exceptionalities and he received services for his learning difficulties as well as his gifted abilities.” However, she also stated that when they came back to the United States, there was “a complete lack of knowledge and understanding.” Parent 4 (P4) responded by explaining that some of her child’s teachers understood. However, others were perplexed by his asynchronous behaviors.

Table 13

*Parent Interview Responses About Teachers' Awareness of Twice-Exceptionality*

| Parent participants | Excerpts  |
|---------------------|---|
| P1                  | I honestly don't think they know what it [twice-exceptionality] means. I think maybe five to seven of all his teachers had some awareness.  |
| P2                  | Teachers were generally not aware but were receptive to what you share with them. If you give them the tools that they need to work with your child.  |
| P3                  | There was a complete lack of knowledge and understanding of what these kinds of kids are like here.   |
| P4                  | Some of them have understood, others are perplexed by him because of that social asynchrony where he talks like a 35-year-old, but in middle school, he acted like a second or third grader sometimes, and they couldn't understand.  |
| P4                  | In some teachers, I think what's missing is that they don't identify Asperger's necessarily with a learning disability. They think of it more of like a quirky social thing. If you say Asperger's, they go, oh little professor and then they have an idea that there might be the social aspect without knowing that it's twice-exceptionality. |
| P5                  | The junior high didn't know a thing about anything.   |

*Note.* P1 to P5 = Parent 1 to Parent 5.

Parents were also asked about the knowledge of the teachers about twice-exceptionality to delve deeper into the awareness issue (see Table 14). Parents were not aware of teachers' level of knowledge. One parents' response (P1) described teachers who were only able to see the disability and not their child's exceptionality, indicating a lack of knowledge about dual exceptionalities. Parent 3 (P3) experienced a complete lack of knowledge and understanding, stating that teachers do not know "what these kids are like."

Table 14

*Parent Interview Responses Describing Their Experiences with Teacher Knowledge of Twice-Exceptionality*

| Parent participants | Excerpts  |
|---------------------|---|
| P1                  | I think that they see the disability and they don't see the exceptionality. I honestly don't think they know what [twice-exceptionality] means. I think maybe only one or two teachers were aware; even the special ed. teachers would just be rigid sometimes. |
| P2                  | They didn't know he needed the organization and the extra little push. When the kid is quiet, they don't get the attention.   |
| P3                  | I really don't think the teachers understand about the hyper-focus and difficulty with transitions. There is a complete lack of knowledge and understanding of what these kids are like.  |
| P4                  | I don't know if they knew the label, but they understood that he had that asynchrony. I felt like over time they're getting more and more knowledgeable that that twice exceptionality existed.   |
| P5                  | The junior high didn't know a thing about anything.   |

*Note.* P1 to P5 = Parent 1 to Parent 5.

The researcher focused on the broader construct of educator and practitioner ability to diagnose concomitant learning disabilities and giftedness to explore teacher awareness about the recognition and identification of twice-exceptional students. The importance of this line of questioning is confirmed by research corroborating the value of early identification of twice-exceptionality for successful academic outcomes (Bennett-Rappell & Northcote, 2016; Crepeau-Hobson & Bianco, 2011; Gilman et al., 2013). These questions also spoke to educators' ability to look past the labels and possible negative behaviors associated with a learning disability to recognize a student's hidden abilities. Given the complexity of identification, it was important to examine how the children were identified. The key question was: were they identified by their disability (see Table 14) or by their gifted abilities (see Table 15).

Table 15

*Parents' Interview Responses About Their Child's Diagnosis or Acknowledgement of a Learning Disability*

| Parent participants | Excerpts  |
|---------------------|---|
| P1                  | The disability came before the giftedness. I've never got a confirmed diagnosis for him until he was 12. His school district diagnosed him with mild to moderate autism   |
| P2                  | He didn't get a diagnosis until he was in middle school. They tried to diagnose him as having ADHD, but he met the requirements for Autism. It was very challenging because Autism looks so different with every child. So, they were really reluctant to give it that label. |
| P3                  | It was brought to my attention when he was in first grade by his teacher. We lived in Beijing, China. She referred me to the school psychologist who made an official diagnosis of ADHD and sensory processing disorder.  |
| P4                  | We got his official diagnosis Autism at the end of seventh grade. That is how long it took because he was so high.  |
| P5                  | It was the school that first diagnosed him in preschool as possible Asperger's...or auditory processing delays. They said at 4 years old he was at the mental age of 12 months.   |

*Note.* P1 to P5 = Parent 1 to Parent 5.

Parents were thus asked to explain how their child was identified and who made the initial diagnosis (see Table 16). Parent 1 (P1) explained that her child was officially diagnosed with mild to moderate autism by her son's school when he was 12 years old. Parent 2 (P2) indicated that her son's school was reluctant to give him a label of autism, so they initially diagnosed him with ADHD. His official diagnosis of autism didn't occur until middle school. Another parent (P4) stated that because her son was so high, she did not receive his official diagnosis of autism until seventh grade. None of the parents in this study indicated that their child's giftedness was recognized prior to their disability, one parent (P3) stated that her son's teacher approached her to ask if she had ever heard of ADHD or sensory processing disorder indicating an awareness of dual exceptionalities. Her son attended a private school in China that

recognized, evaluated, and provided services for her son's learning disability along with pull-out programs to "work on special projects in his interests and strengths."

Table 16

*Parents' Interview Responses Regarding Their Child's Diagnosis or Acknowledgement of Giftedness*

| Parent participants | Excerpts  |
|---------------------|---|
| P1                  | He was never recognized for his gifted abilities or put into gifted education classes, but he always had a grasp of arcane knowledge.   |
| P2                  | No references   |
| P3                  | The giftedness was confirmed in certain areas in first grade when we lived in Beijing. They had a gifted department that looked after the kids identified as gifted. They would pull him out and work with him on special projects. |
| P4                  | It was just everybody said he was gifted. We know he is but, if you only follow the traditional tests, he can't write quickly enough. The district doesn't really do anything for gifted kids.                                      |
| P5                  | No references   |

*Note.* P1 to P5 = Parent 1 to Parent 5.

After the parent participants described the process by which their child was first identified with a learning disability or giftedness, the theme of awareness was explored more deeply by examining the characteristics, behaviors or activities the parents observed that evidenced a learning disability or processing disorder in their child (see Table 17). Parent 1 (P1) said her son "didn't speak in complete sentences until he was seven." Parent 3 (P3) stated that the school first noticed his unusual behavior in the classroom through his impulsivity and struggles with executive functions. Parent 5 (P5) responded that her son "would put his hands over his ears and pacifier in his mouth" when stressed or anxious.

Table 17

*Parents' Interview Responses Describing Their Child's Learning Disability*

| Parent participants | Excerpts   |
|---------------------|--|
| P1                  | He didn't speak in complete sentences until he was seven.  |
| P2                  | I knew there was something different. He didn't talk right away. He didn't develop like his older brother. He had to be poked and prodded and nudged.  |
| P3                  | The school noticed unusual behavior in the classroom in first grade like impulsivity. I saw how much he struggled with executive function. His asynchronous development stresses me out.   |
| P4                  | Kinder was tough because of his writing issues, the kids would be faster than him. If they had just done verbal assessments, it would have been great, but his motor skills were so poor, especially back then third, fourth grade that he just was under the score. |
| P5                  | He would put his hands over his ears and pacifier in his mouth. I honestly didn't realize because we had a language all our own. He was treated like any other kids until 7th grade. That's when it hit. He was going downhill fast.                                 |

*Note.* P1 to P5 = Parent 1 to Parent 5.

The researcher coded the parent interview responses from Table 16 and Table 17 and produced a word frequency cloud about two topics: the diagnosis of a disability and exhibited behaviors of a learning disability (see Figure 14). The word “behavior” had the highest response rate, with a count of 18. The other words mentioned in decreasing order of frequency were: “teacher” with a count of 13, “need” with a count of 9, and “support” with a count of 8.





Table 18

*Parents' Interview Responses Describing Their Child's Gifted Abilities*

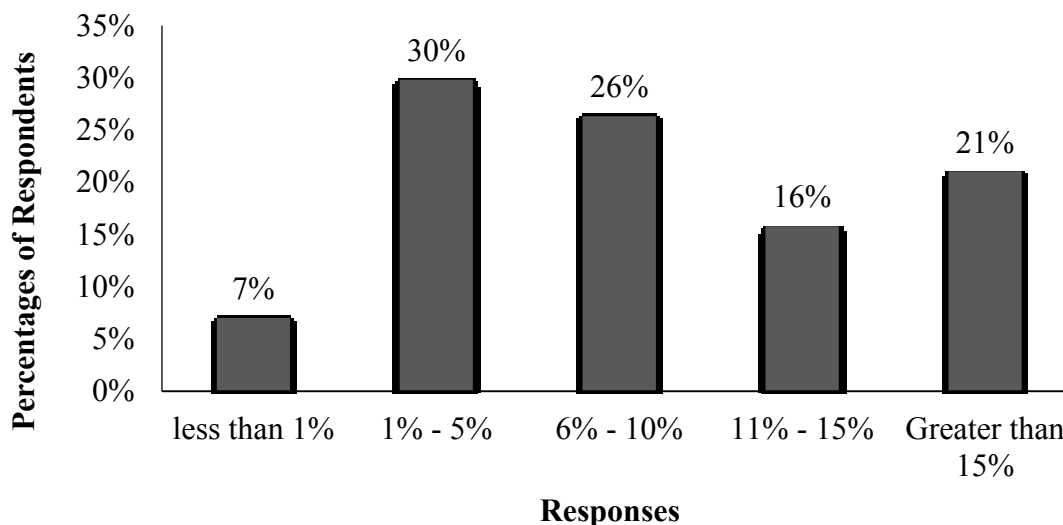
| Parent participants | Excerpts   |
|---------------------|--|
| P1                  | He always had a grasp of arcane knowledge. He wasn't exactly outstanding academically, but he grasped concepts very easily. Once he knew it, he mastered it. I mean we are dealing with a kid that skipped 42 days of his senior year in high school and came out with straight A's. |
| P2                  | I knew how smart he was. It [School] was kind of boring to him. He didn't really see the need for it. He would research everything that was of interest to him. He'd watch videos. He comes to me with the most knowledge.   |
| P3                  | He would stay in class during recess or lunch break to work on a special project. In middle school, he was really interested in physics.   |
| P4                  | He is extremely verbal and the "little professor" about so many things. He has a high sense of moral justice.  |
| P5                  | When he was 3 years old, he would sit on Nintendo 64 and master it. That's when he started to learn how to hack games with codes and cheat.  |

*Note.* P1 to P5 = Parent 1 to Parent 5.

The researcher coded the parent interview responses from Table 14 and Table 16 concerning diagnosis or acknowledgment of giftedness and exhibited behaviors of gifted abilities which produced a word frequency cloud (see Figure 15). The words “able,” “gifted,” and “passion” had the highest frequencies, followed by “interests,” “project,” and “academically.”

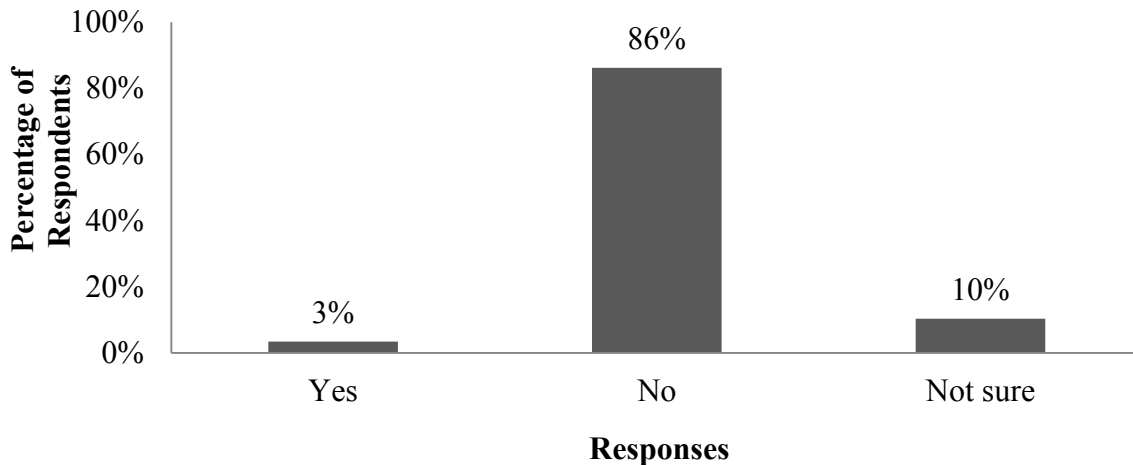


exceptional, choosing the option 1% - 5%. Twenty-six percent ( $n = 15$ ) of the respondents, correctly thought that 6%-10% of gifted students were twice-exceptional. Seven percent ( $n = 4$ ) estimated that less than 1% of gifted students were twice-exceptional, 16% ( $n = 9$ ) indicated that 11%-15% were twice-exceptional, and 21% ( $n = 12$ ) thought that greater than 15% were twice-exceptional (see Figure 16).



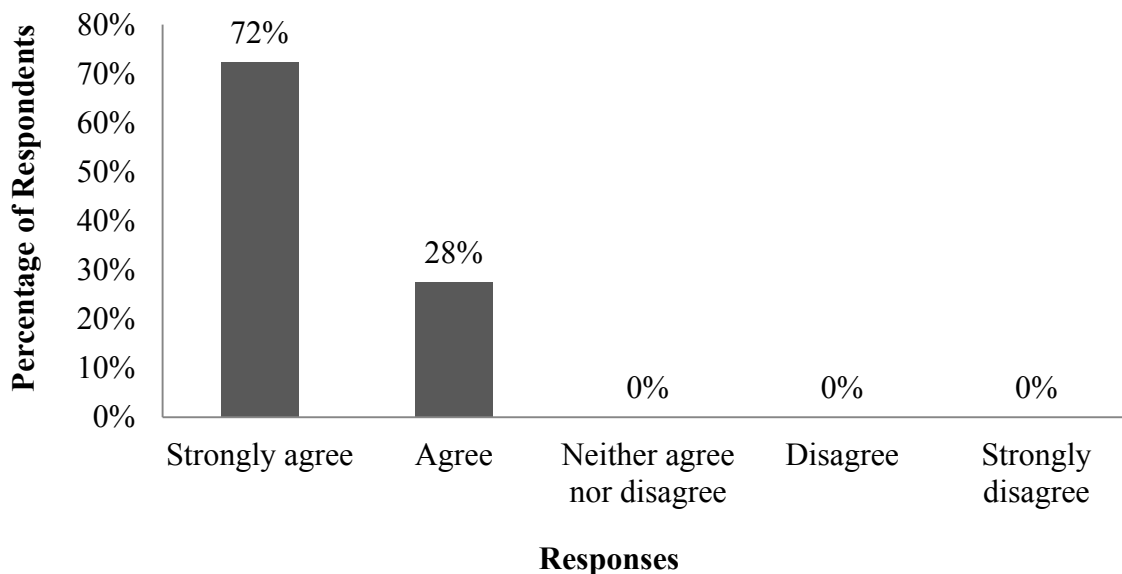
*Figure 16.* Bar graph representing the estimated percentage of gifted students that are twice-exceptional ( $N = 58$ ).

Figure 17 summarizes teachers' beliefs about whether or not the term "twice-exceptional" is understood by the general public. Of the teacher respondents ( $N = 58$ ), 86% ( $n = 50$ ) of the teachers believed that the term "twice-exceptional" was not understood by the general population, 3% ( $n = 2$ ) believed the term was understood by the general population, and 10% ( $n = 6$ ) were not sure.



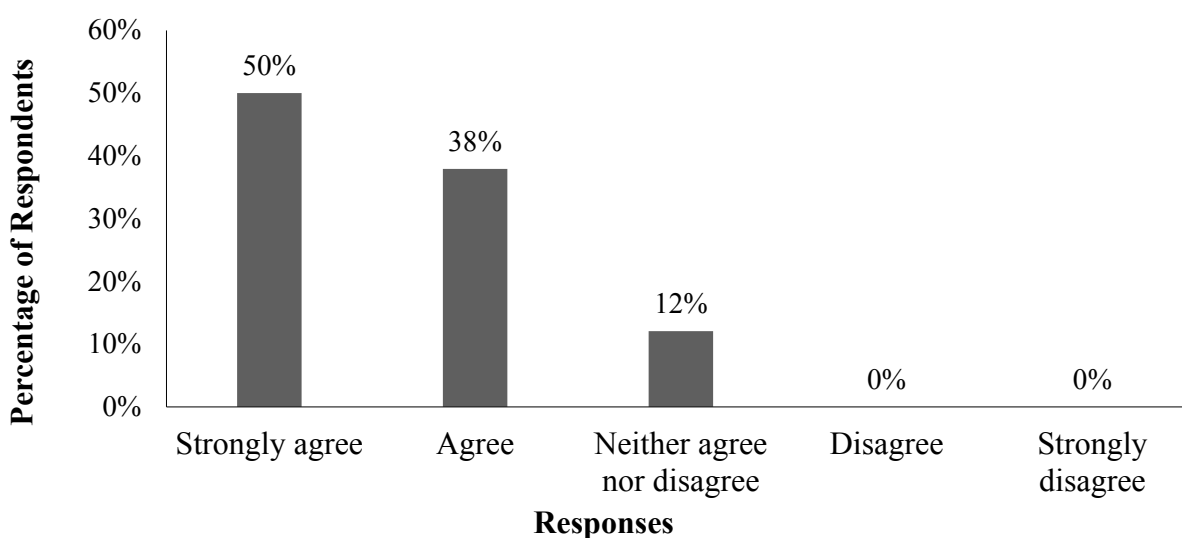
*Figure 17.* Respondents' belief that the term "twice-exceptional" is understood by the general population ( $n = 58$ ).

Teacher understanding of dual exceptionalities was further examined through a Likert scale survey question asking respondents if they believed giftedness and learning disabilities could be present in the same individual (see Figure 18). An overwhelming majority of teachers 72% ( $n = 42$ ) strongly agreed that a student can be both gifted and have a learning disability, 28% ( $n = 16$ ) agreed and 0% ( $n = 0$ ) disagreed or strongly disagreed.



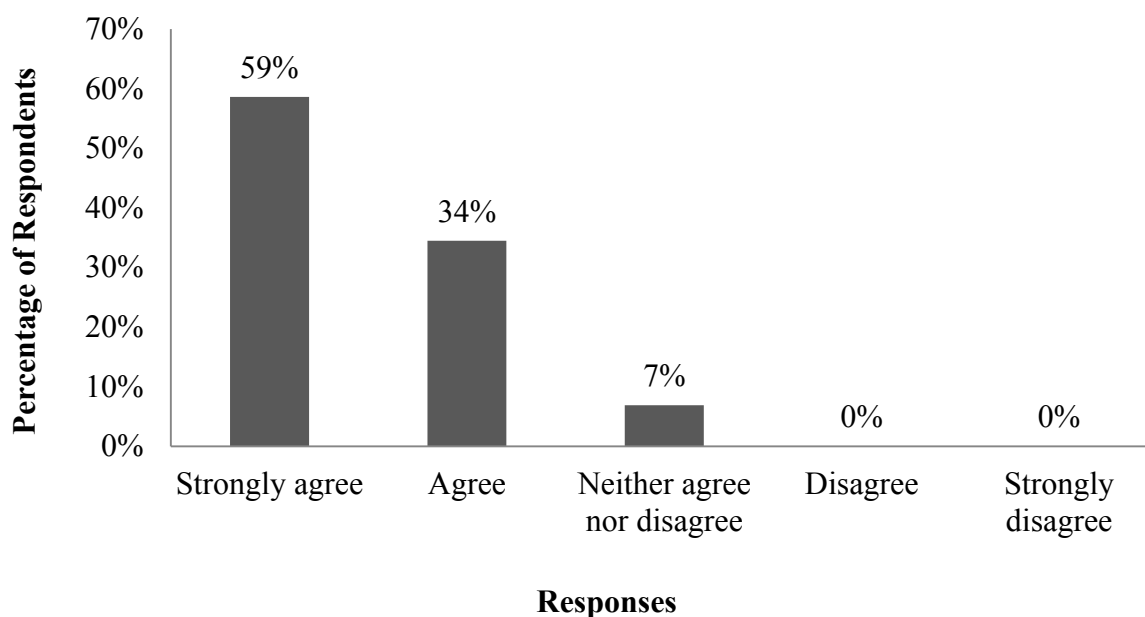
*Figure 18.* Giftedness and disabilities can be present in the same individual ( $N = 58$ ).

As seen in Figure 19, an overwhelming majority of teacher respondents strongly agreed that giftedness and disabilities could be present in the same individual. Acknowledging teachers' awareness of dual exceptionalities, the researcher also wanted to understand how teachers felt about serving students that have these qualities in the classroom. In the survey, respondents were thus also asked whether they believed that students could be served for giftedness and disabilities simultaneously (see Figure 19). Fifty percent ( $n = 29$ ) stated that they strongly agreed, 38% ( $n = 22$ ) agreed, 12% ( $n = 7$ ) neither agreed nor disagreed



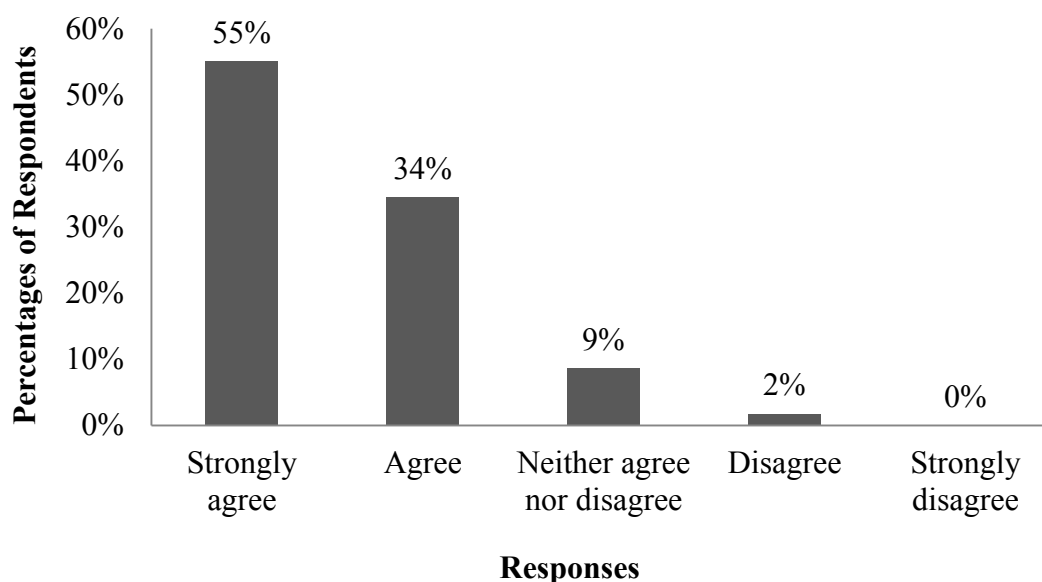
*Figure 19.* Bar graph representing respondents' belief about whether students' could be served for giftedness and disabilities simultaneously ( $N = 58$ ).

Teacher respondents were asked if they believed that gifted students could be eligible for special education services by using the variables of giftedness and learning disabilities in different configurations (see Figure 20). Fifty-nine percent ( $n = 34$ ) of the respondents strongly agreed that gifted students could receive special education services, 34% ( $n = 20$ ) agreed, and 7% ( $n = 4$ ) neither agreed nor disagreed.



*Figure 20.* Bar graph showing respondents' belief that gifted students could be eligible for special education services ( $N = 58$ ).

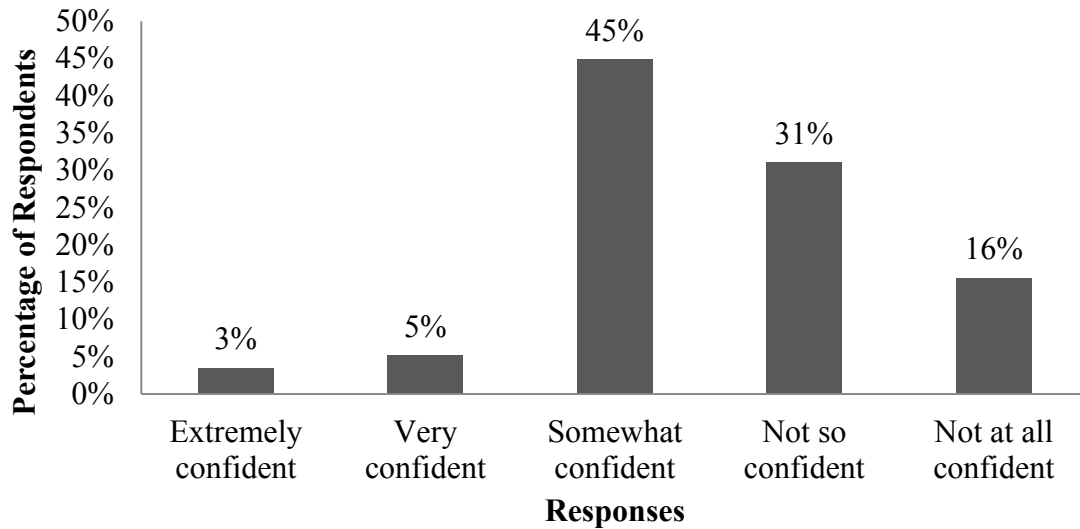
Reversing the variables of giftedness and learning disabilities in the question, respondents were also asked whether they believed students with learning disabilities were eligible to receive gifted education services (see Figure 21). Of the respondents, 55% ( $n = 32$ ) strongly agreed, 34% ( $n = 20$ ) agreed, 9% ( $n = 5$ ) neither agreed nor disagreed, and 2% ( $n = 1$ ) disagreed with the statement. Figure 20 and Figure 21 demonstrate teacher awareness that giftedness does not exclude a learning disability and vice versa.



*Figure 21.* Bar graph showing teachers' beliefs about whether students with diagnosed learning disabilities were eligible to receive gifted education services ( $N = 58$ ).

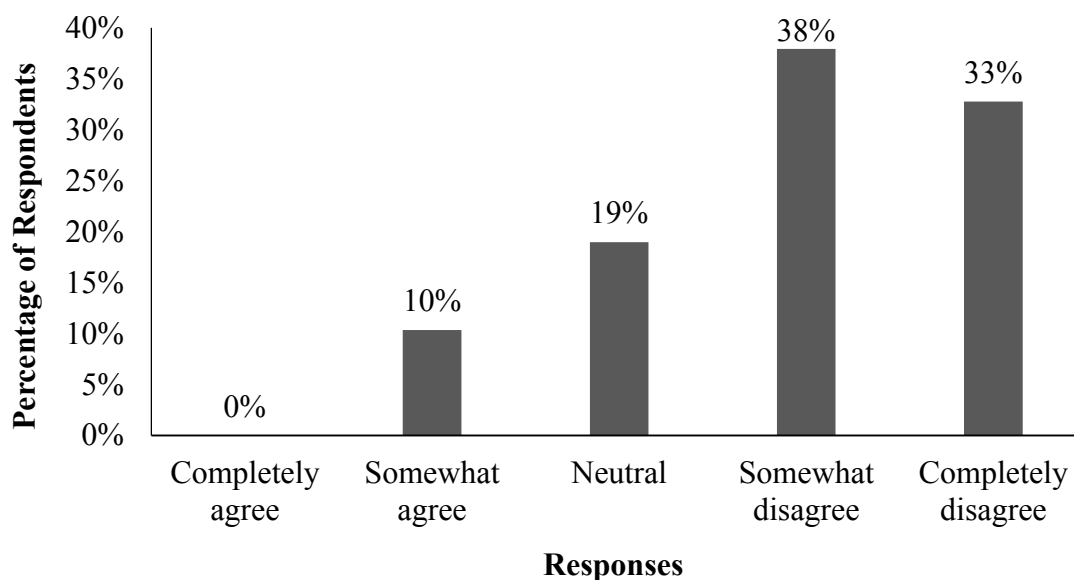
Teachers must have a general understanding and knowledge of the characteristics and behaviors exhibited by twice-exceptional students to make appropriate referrals for evaluation. Teacher respondents were asked about their level of confidence in making appropriate referrals for evaluation (see Figure 22). Eight percent ( $n = 5$ ) of the respondents were extremely or very confident in their ability to make an appropriate referral for evaluation of a student they believed may be twice-exceptional, 45% ( $n = 26$ ) were somewhat confident, and 47% ( $n = 27$ ) were either not so confident or not confident at all in their ability to make an appropriate referral.





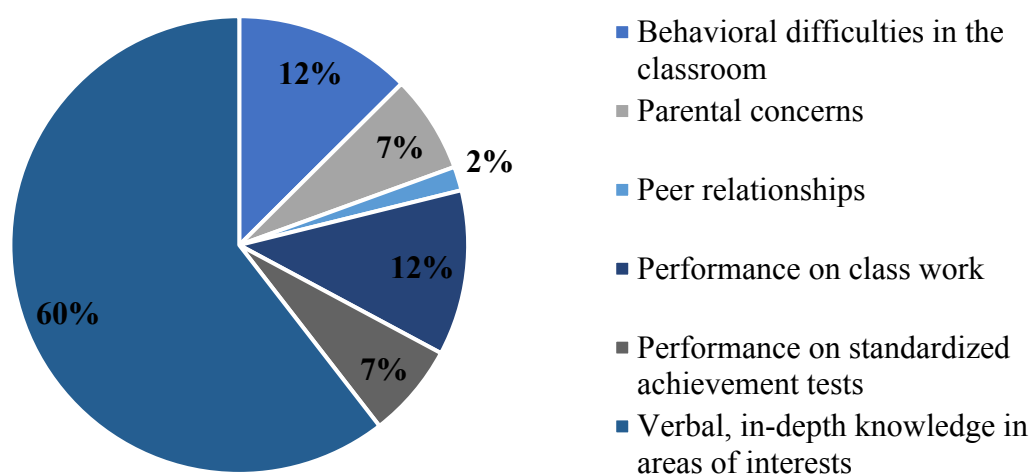
*Figure 22.* Bar graph of respondents' level of confidence in making an appropriate referral for evaluation ( $N = 58$ ).

An additional statement was proposed to measure the respondents' level of awareness about twice-exceptionality. The respondents were asked about the degree to which they agreed or disagreed with the statement that teachers and school professionals had appropriate information and methods for identifying students demonstrating twice-exceptional characteristics (see Figure 23). An overwhelming majority of respondents, 71% ( $n = 41$ ) either completely disagreed or somewhat disagreed with the statement, 19% ( $n = 11$ ) respondents were neutral, and only 10% ( $n = 6$ ) somewhat or completely agreed.



*Figure 23.* Teachers and school professionals have appropriate information and methods for determining which students demonstrate twice-exceptional characteristics ( $N = 58$ ).

Given the majority of respondents were less than confident in their ability to make referrals for suspected twice-exceptionality, this study sought to connect confidence level data with respondent's awareness of the most commonly observed performance and behavioral indicators of twice-exceptionality. Respondents were asked to rank the factors or indicators they believed were most important in making a referral for evaluation of twice-exceptionality in order of importance (see Figure 24). More than half of the respondents, 63% believed that verbal, in-depth knowledge in areas of interest should be the leading factor determining referrals for evaluation. Twelve percent indicated behavioral difficulties in the classroom and performance on classwork, and 7% perceived parental concerns and performance on standardized achievement tests as primary indicators of twice-exceptionality. Notably, only 2% of the respondents indicated peer relationships as an important factor for referral.



*Figure 24.* Pie chart showing respondents' beliefs regarding the most important factor for evaluation of twice-exceptionality ( $N = 58$ ).

### **Teacher Training: Quantitative**

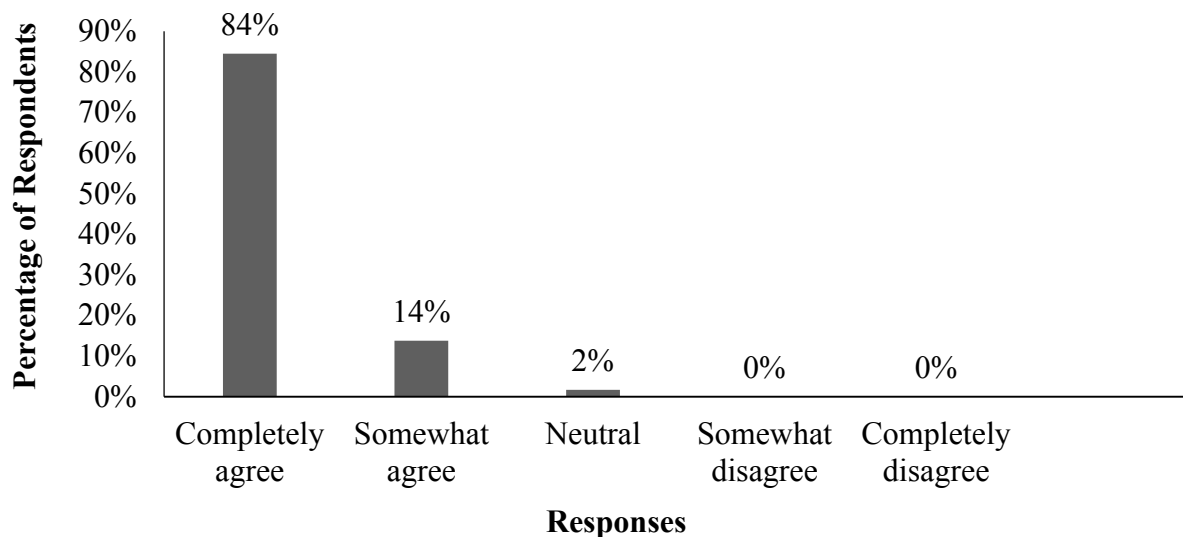
Exploring teacher respondents' opinions about the responsibilities of the administration of their school, the survey also included an open-ended question which asked respondents to describe what they needed most from their administration to best meet the needs of the twice-exceptional students in their classrooms (see Table 19). Using the tools available on SurveyMonkey, thematic, and frequency analyses were carried out. The researcher identified four themes from the open-ended responses: professional development on twice-exceptionality, which was mentioned by the majority of participants, 67% ( $n = 35$ ). The other themes in decreasing order of frequency of occurrence were: classroom support at 50% ( $n = 25$ ), special education training at 16% ( $n = 8$ ), and identification protocols at 10% ( $n = 5$ ).

Table 19

*Open-ended Frequency Data for What Respondents Need Most from Their School**Administration to Best Meet the Needs of the 2e Students (n = 51)*

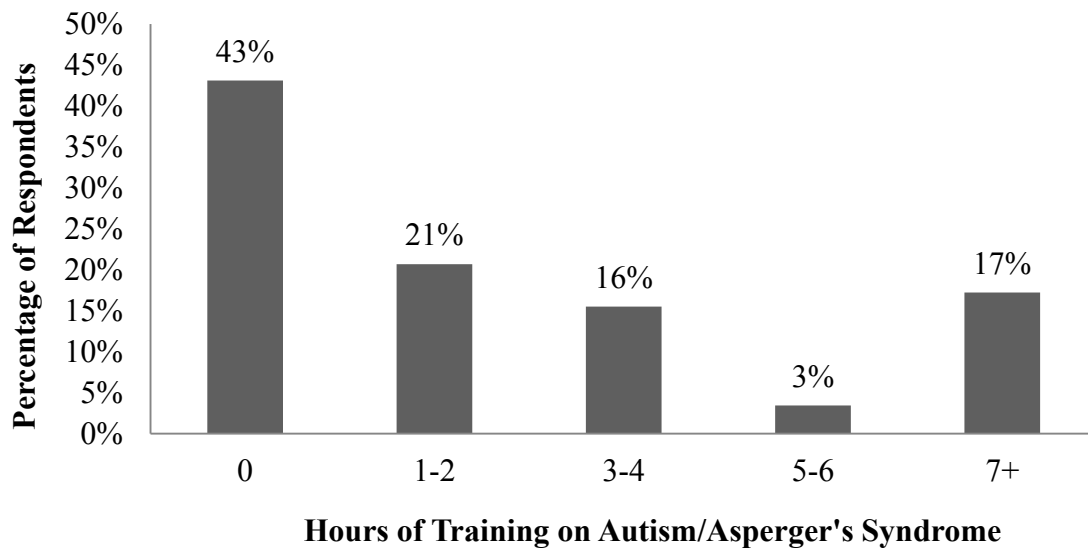
| Coded themes                                     | Frequency | Percent |
|--|-----------|---------|
| Professional development on twice-exceptionality | 35        | 67%     |
| Classroom support                                | 25        | 50%     |
| Special education training                       | 8         | 16%     |
| Identification Protocols                         | 5         | 10%     |

As demonstrated by the responses on teacher awareness (see Tables 10 and 11), and the role of the school administration (see Table 19), teacher respondents repeatedly stated that they had little to no training, and felt that it was the primary responsibility of the school administration to initiate professional development options. The specific types of training or professional development that teacher respondents had participated in, their frequency, and their perceptions about the adequacy of the training were also explored. A survey question asked whether educators needed more information and support on how to best address the needs of twice-exceptional students (see Figure 25). Eighty-four percent ( $n = 49$ ) of the respondents completely agreed that educators needed more information and support on how to best address the needs of twice-exceptional students, 14% ( $n = 8$ ) agreed, 2% ( $n = 1$ ) responded as neutral.



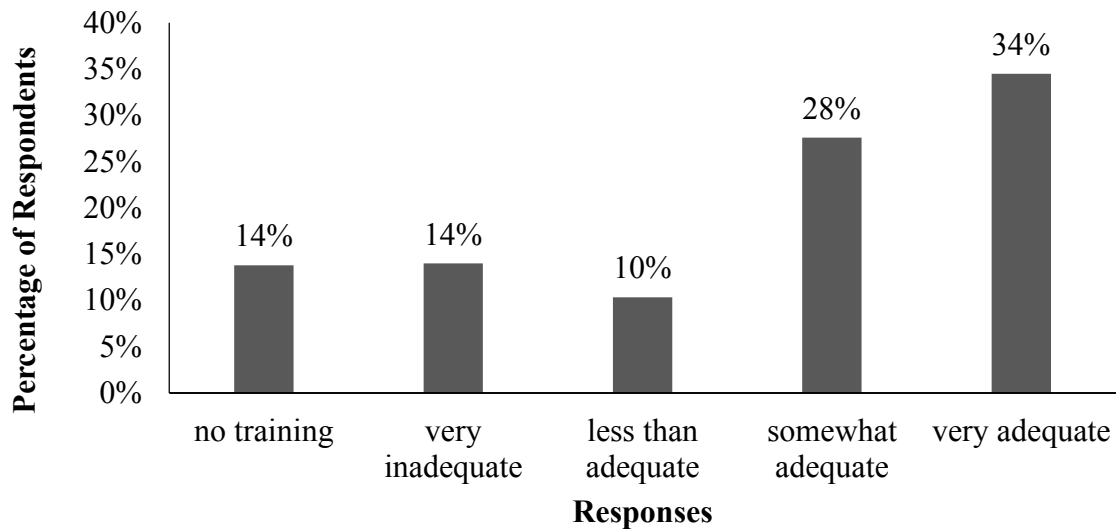
*Figure 25.* Bar graph depicting whether educators needed more information and support on how to best address the needs of twice-exceptional students ( $N = 58$ ).

Given the increasing rates of high-functioning Autism/Asperger's syndrome among school-aged children, the researcher focused the TATE survey on this disability. The survey asked respondents to estimate the number of in-service or workshop hours they had attended on the topic of Autism/Asperger's syndrome. Of the 58 respondents, the majority of participants, 43% ( $n = 25$ ), indicated that they had no in-service or workshop hours related to Autism or Asperger's syndrome. Twenty-one percent ( $n = 12$ ) had received one to two hours of in-service or workshop hours, 16% ( $n = 9$ ) had attended three to four hours, 3% ( $n = 2$ ) indicated five to six hours, and 17% ( $n = 10$ ) reported seven or more hours of training on the topic of Autism or Asperger's syndrome (see Figure 26).



*Figure 26.* Bar graph representing respondents' hours of training on the topic of Autism/Asperger's syndrome ( $N = 58$ ).

Successful implementation of inclusive practices in education is critical; hence a question was included in the survey asking teacher respondents about their level of training in special education and/or learning disabilities. Question 16 asked respondents about how adequate they felt their net training in special education and learning disabilities had been. Figure 27 illustrates that only 34% ( $n = 20$ ) of the respondents felt that their training in special education and learning disabilities was very adequate. Overall, 66% of the respondents believed that their training was either somewhat adequate or at even lower adequacy levels.



*Figure 27.* Bar graph representing respondents' perceived adequacy of training in special education and learning disabilities ( $N = 58$ ).

Another question about teacher training asked the participants to estimate the number of in-service training hours they had attended on the topic of gifted and talented education (see Figure 28). Fourteen percent ( $n = 14$ ) of the respondents indicated that they had received no in-service hours on the topic of gifted and talented education. Most participants, 34% ( $n = 20$ ) reported one to two hours only. Five percent of the respondents ( $n = 3$ ) indicated three to four hours, 10% indicated five to six hours, and 26% ( $n = 15$ ) reported seven or more hours of in-service training hours on the topic of gifted education.

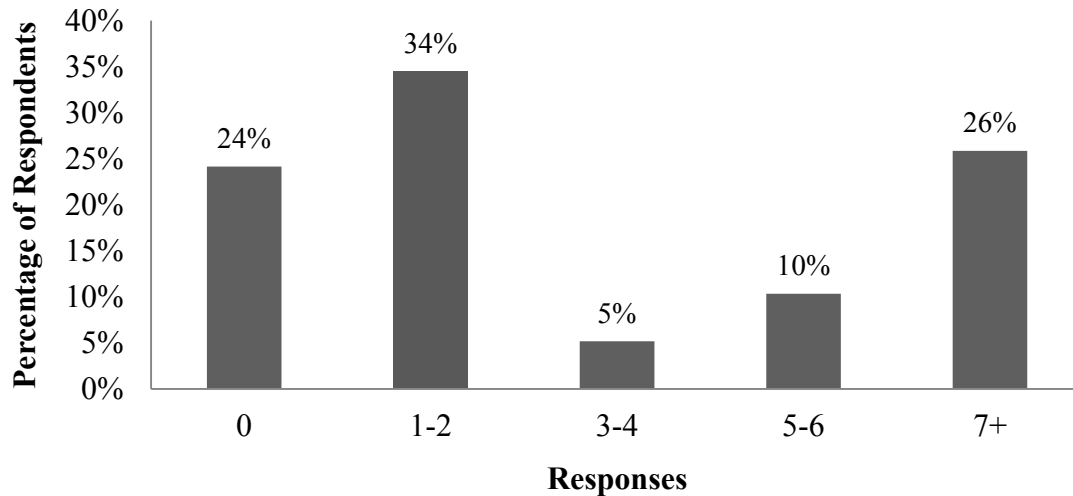


Figure 28. Bar graph representing hours of training in gifted education ( $N = 58$ ).

Respondents were also asked to indicate if they felt they had adequate training in gifted education (see Figure 29). Seventeen percent ( $n = 10$ ) of the respondents felt that their training in gifted education was very adequate, 31% ( $n = 18$ ) indicated somewhat adequate, 34% ( $n = 20$ ) indicated less than adequate, 3% ( $n = 2$ ) indicated very inadequate, and 14% ( $n = 8$ ) of the respondents indicated they had no training in gifted education.

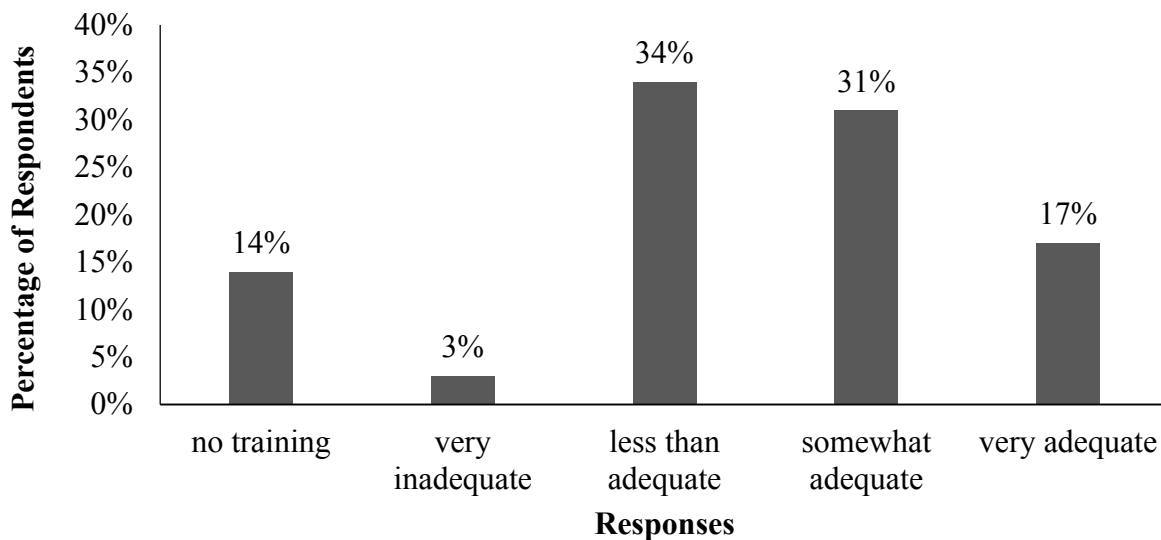


Figure 29. Bar graph representing respondents' perceived adequacy level of their training in gifted education ( $N = 58$ ).



Districts throughout California have a wide variety of focus areas for professional development opportunities targeting their staff. With this in mind, the researcher compared the number of training hours between the district she worked in (District 1) and the other two districts (Districts 2 and 3) in this study (see Table 20). The data demonstrates a difference in the number of in-service or workshop hours on the topic of gifted/talented education between the two groups surveyed. Table 20 demonstrates that 39% ( $n = 5$ ) of the teacher respondents in Districts 2 and 3 had no training hours in gifted and talented education, 54% ( $n = 7$ ) had one to two hours of training, and 8% ( $n = 1$ ) had more than seven hours of training hours in gifted and talented education. In District 1, 20% ( $n = 9$ ) had no training, 49% ( $n = 22$ ) had between one to six hours of training, and 31% ( $n = 14$ ) of the respondents had more than seven hours of training on the topic of gifted and talented education.

Table 20

*Number of In-Service or Workshops Hours Attended on the Topic of Gifted and Talented Education*

| Frequency of responses | District 1 ( $n = 45$ ) |         | Districts 2 and 3 ( $n = 13$ ) |         |
|------------------------|-------------------------|---------|--------------------------------|---------|
|                        | Frequency               | Percent | Frequency                      | Percent |
| No training hours      | 9                       | 20%     | 5                              | 39%     |
| 1-2 hours              | 13                      | 29%     | 7                              | 54%     |
| 3-4 hours              | 3                       | 7%      | 0                              | 0%      |
| 5-6 hours              | 6                       | 13%     | 0                              | 0%      |
| 7 or more hours        | 14                      | 31%     | 1                              | 8%      |

In addition to the specific number of hours of training on gifted and talented education, the researcher also measured respondents' beliefs about the adequacy of their training in gifted and talented education (see Table 21). The data demonstrates that in Districts 2 and 3, 70% ( $n = 9$ ) of respondents felt their training was either very inadequate to less than adequate and 31%

( $n = 4$ ) felt their training in the area of gifted and talented education was somewhat to very adequate. In District 1, 90% ( $n = 40$ ) of the respondents believed that their training was very inadequate or less than adequate while 11% ( $n = 3$ ) felt their training was somewhat or very adequate.

Table 21

*Respondents' Beliefs of the Adequacy of Their training About Gifted and Talented Education*

| Frequency of responses | District 1 ( $n = 45$ ) |         | Districts 2 and 3 ( $n = 13$ ) |         |
|------------------------|-------------------------|---------|--------------------------------|---------|
|                        | Frequency               | Percent | Frequency                      | Percent |
| No training            | 16                      | 36%     | 4                              | 31%     |
| Very inadequate        | 9                       | 20%     | 0                              | 0%      |
| Less than adequate     | 15                      | 34%     | 5                              | 39%     |
| Somewhat adequate      | 2                       | 4%      | 3                              | 23%     |
| Very adequate          | 3                       | 7%      | 1                              | 8%      |

Three survey questions specifically addressed the topic of twice-exceptionality, including the number of hours (see Figure 30), the frequency (see Figure 31) and the perceived adequacy of training (see Figure 32). The majority of respondents, 74% ( $n = 43$ ), indicated that they had not received or attended any hours of training on twice-exceptionality. Twenty-one percent ( $n = 12$ ) indicated that they had received one to two hours of training, 2% ( $n = 1$ ) had received three to four hours, and 3% ( $n = 2$ ) had five to six hours of training. However, no respondent ( $n = 0$ ) reported seven or more hours of training on issues related to twice-exceptionality.

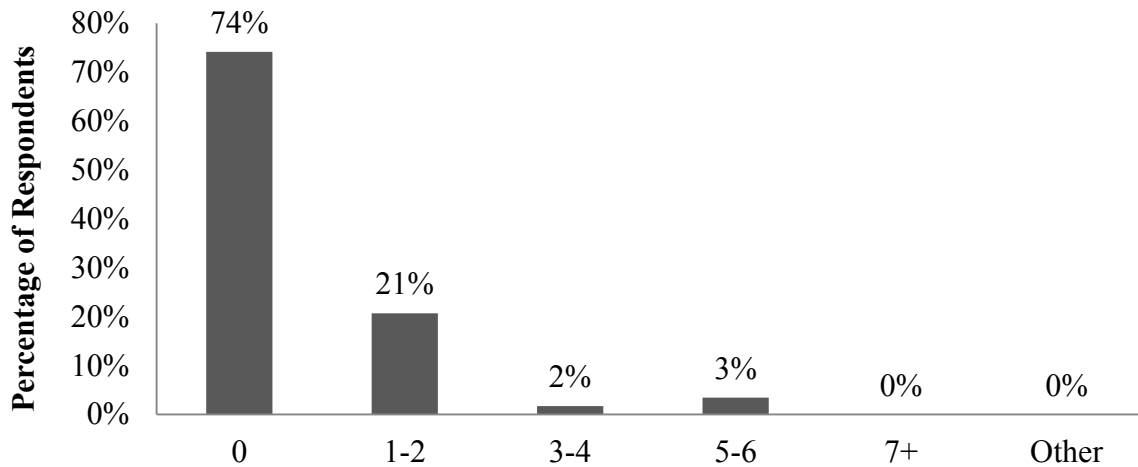


Figure 30. Bar graph representing in-service or workshop hours on issues related to twice-exceptionality ( $N = 58$ ).

Figure 31 displays the frequency with which respondents received training or workshops focused on serving twice-exceptional students. Seventy-one percent ( $n = 41$ ) of the respondents indicated that they had never received any training for supporting twice-exceptional students while 29% ( $n = 17$ ) reported that they have received training less than once a year. No respondents received training with frequencies of more than once a year.

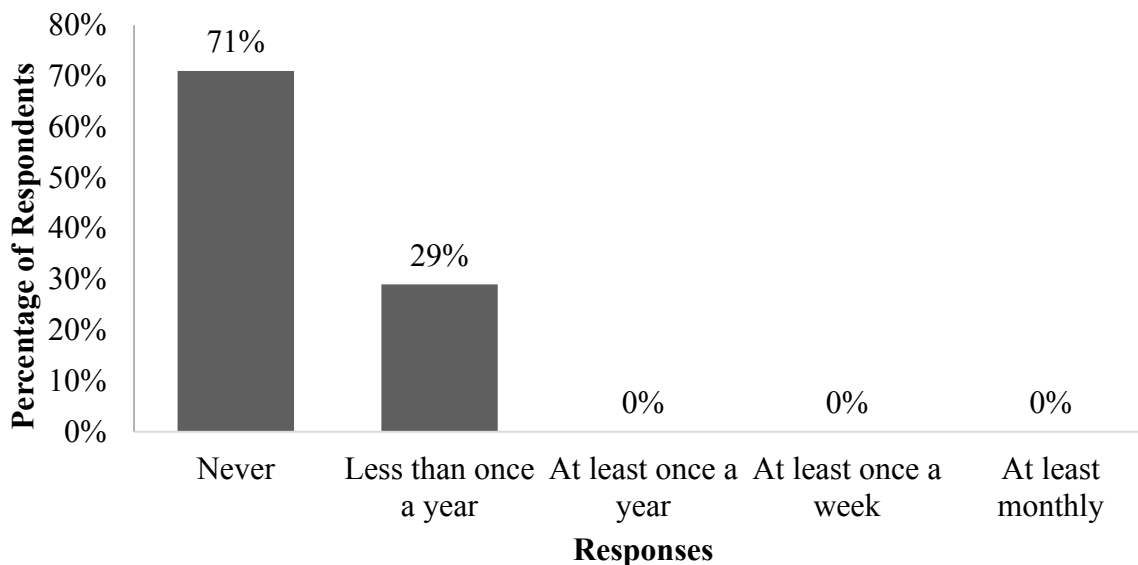
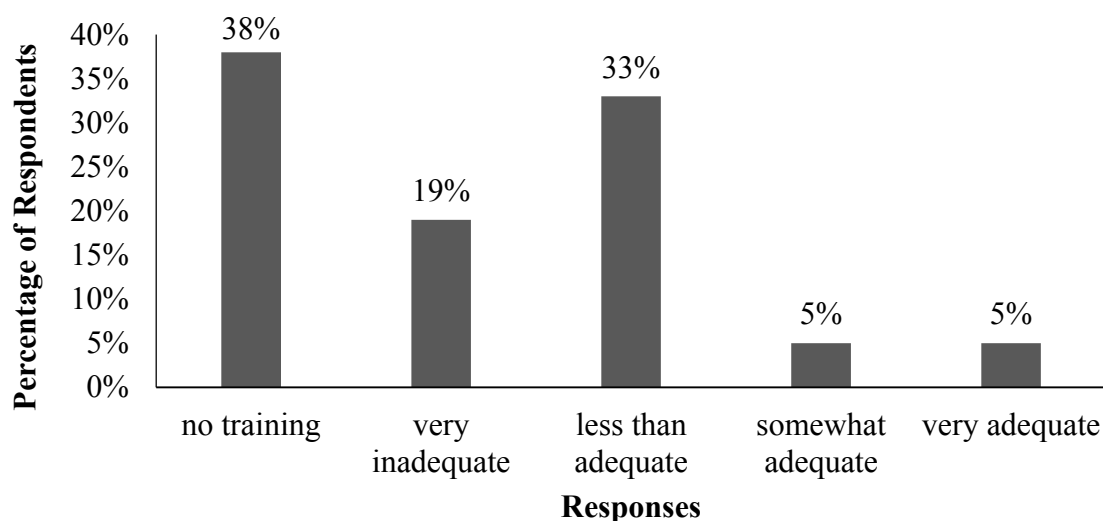


Figure 31. Bar graph representing the frequency of training or workshops focused on twice-

exceptional students ( $N = 58$ ).

Figure 32 displays how teacher respondents felt about the adequacy of their training on twice-exceptionality. Of the 58 respondents, 38% ( $n = 22$ ) indicated that they had no training on issues related to twice-exceptionality. More than half of the respondents, 57% ( $n = 25$ ), indicated that their training was very inadequate, less than adequate or somewhat adequate. Only 5% ( $n = 3$ ) of the respondents indicated that their training on issues related to twice-exceptionality was very adequate.



*Figure 32.* Bar graph representing respondents' feelings regarding the adequacy of their training on issues related to twice-exceptionality ( $N = 58$ ).

School leadership plays a fundamental role in determining the direction of professional development at a school site; hence the survey also explored teachers' perceptions about the roles and responsibilities of their school administration with regards to twice-exceptional students. Respondents were asked how well-informed they believed their school administration was on issues related to twice-exceptionality (see Figure 33). The majority of respondents, 52% ( $n = 30$ ), indicated that they believed their school administration was somewhat informed on 2e

issues. Nine percent ( $n = 5$ ) indicated that they very well-informed, while 39% ( $n = 23$ ) perceived that their school administration was either not at all informed or not very well-informed on issues related to twice-exceptionality.

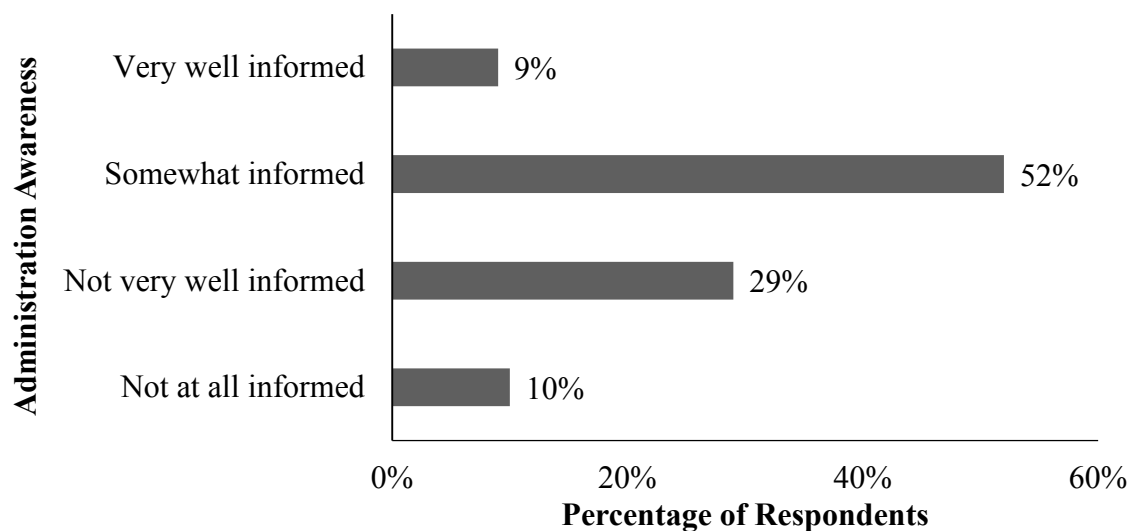


Figure 33. Bar graph showing respondents' perceptions about how well-informed the school administration was on issues related to twice-exceptionality ( $N = 58$ ).

Question 11, formulated in a Likert-style format, asked respondents how confident they were that their school was able to meet the unique learning needs of their students (see Table 22). Response options were organized on a 4-point scale: *Very confident* (4), *somewhat confident* (3), *not very confident* (2), *not at all confident* (1). When reporting about typical students, 86% ( $n = 50$ ) of the respondents chose *very confident* or *somewhat confident* and 14% ( $n = 8$ ) chose *not very confident* or *not at all confident*. When reporting about special education students, the trend was similar: The majority of teachers, 81% ( $n = 47$ ), chose being *very confident* or *somewhat confident* while 19% ( $n = 11$ ) selected *not very confident* or *not at all confident*. The percentage of respondents who had a high level of confidence in their school's ability to help gifted students was smaller: 58% ( $n = 34$ ) of the respondents was *very confident* or *somewhat confident*, and 42% ( $n = 24$ ) reported being *not very confident* or *not confident at all*. On the other hand, for

twice-exceptional students, none of the respondents reported being very confident, 24% ( $n = 14$ ) selected *somewhat confident*, 50% ( $n = 29$ ) *not very confident*, and 26% ( $n = 15$ ) *not at all confident* in their schools' ability to help twice-exceptional students.

Table 22

*Respondents' Confidence that Their School Does All It Can to Help the Following Population of Students (N = 58)*

| Students                   | <i>Very confident</i> | <i>Somewhat confident</i> | <i>Not very confident</i> | <i>Not at all confident</i> |
|----------------------------|-----------------------|---------------------------|---------------------------|-----------------------------|
| Typical students           | 38%                   | 48%                       | 9%                        | 5%                          |
| Special Ed/LD students     | 36%                   | 45%                       | 14%                       | 5%                          |
| Gifted students            | 17%                   | 41%                       | 28%                       | 14%                         |
| Twice-exceptional students | 0%                    | 24%                       | 50%                       | 26%                         |

### **Teacher Training: Qualitative**

Parent participants were asked if they had any knowledge about the specific training their child's teachers had on the topic of twice-exceptionality (see Table 23). The parents were not able to identify specific training or professional development completed but did offer other related information. Parent 1 (P1) stated that she didn't "think general education teachers ever got around to it [training]" because they do not have the resources or the money for training. Parent 2 (P2) replied that if teachers knew what they were doing and "if you give them [teachers] the tools that they need to work with your child, the results will be positive." Two parents were not able to state if their child's teachers had any specific training.

Table 23

*Parent Interview Responses Describing the Training of Teachers on Issues Related to Twice-exceptionality*

| Parent participants | Excerpts   |
|---------------------|--|
| P1                  | I think that if they were speaking about general education teachers, I don't think they ever got around to it. They don't have resources. They don't have the money. |
| P2                  | If they know what they're doing and if you give them the tools that they need to work with your child, they can.   |
| P3                  | Definitely not...and I'm not basing it on fact. I'm just basing on the evidence.   |
| P4                  | no reference   |
| P5                  | no reference   |

### **Research Question 2**

Research Question 2 was: What role do teachers play in the academic success or failure of twice-exceptional students? Research Question 2 was a ranking question designed to determine the factors that teacher and parent respondents felt had the most influence on the academic achievement and social-emotional outcomes of twice-exceptional students. The bar chart (see Figure 34) shows the percentage of respondents who have given specific ranks to each of five possible factors, from one to five (peers at school, individual education plan goals, parents, self-directed learning, and teachers) based on the perceived impact of each factor on academic outcomes. For example, 2% of the respondents ranked peers at school as the topmost important factor, assigning a value of five to this factor. By comparing the percentage of respondents who have chosen each factor as the most influential factor affecting academic outcomes, it can be observed that the greatest percentage of teachers, 38% of respondents believed that they had the most academic influence over twice-exceptional students. The other factors perceived as impacting academic outcomes of twice-exceptional students in order of

decreasing frequency were: self-directed/interest-based learning outside of school which were mentioned by 26% ( $n = 15$ ) of respondents, parental influence chosen by 20% ( $n = 11$ ), and the students' Individual Education Plan (IEP) goals selected by 16% of respondents ( $n = 9$ ). Only 2% of teacher respondents believed that peers offered the most influence on the academic achievement of twice-exceptional students.

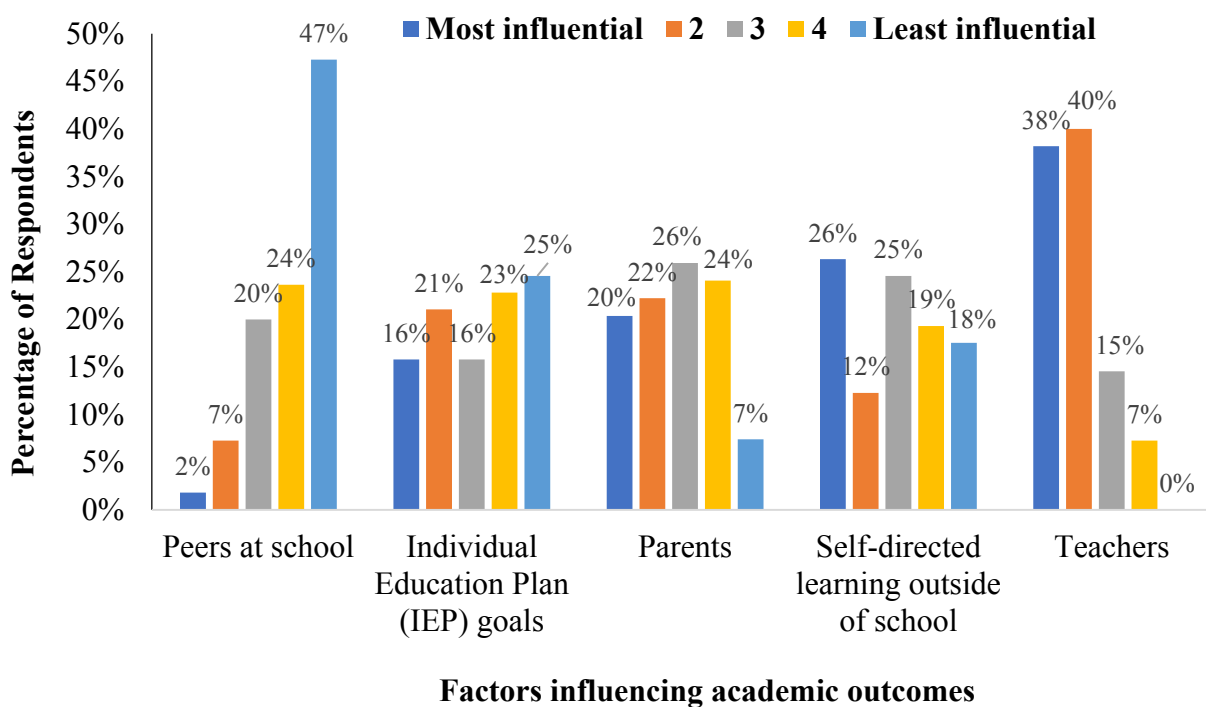


Figure 34. Bar graph showing the percentage of respondents having ranked each factor in specific orders of influence based on the educational outcomes of twice-exceptional students ( $N = 58$ ).

### Role of Teachers: Qualitative

During the qualitative interviews, parents were also asked who they believed had the most influence on their child's academic achievements (see Table 24). Parent 1 (P1) stated that she believed that teachers who thought outside the box had the most influence on her son's academic success. Parent 2 (P2) stated that her child's academic success was mostly attributed



to his parents and grandparents. She also believed that her son's drive to succeed was a key influence in his academic success. Parent 3 (P3) affirmed that her child's teachers were "first in terms of educational outcomes." Agreeing with Parent 2, Parent 4 (P4) stated that her child was a big part of his success but added that "it's at least a triangle to make it stable," identifying 2e children, their parents, and teachers as the key contributors to academic success.

Table 24

*Parent Interview Responses About Who Was the Most Influential To Their Child's Academic Success*

| Parent participants | Excerpts   |
|---------------------|--|
| P1                  | I would say teachers...I would qualify it by saying that they were the teachers who think outside the box.   |
| P2                  | For my son I would say its parent driven and grandparent driven...and then I would say personal driven.  |
| P3                  | I would say teachers were first in terms of the educational outcomes.  |
| P4                  | It's at least a triangle to make it stable. He [my son] was a big part of his success. The IEP goals definitely helped. My husband and I being involved as well. So, it was nice once we had everybody together. |
| P5                  | No response  |

### Research Question 3

Research Question 3 was: How do parental awareness and advocacy influence the academic outcomes of twice-exceptional students in school? Research Question 3 purposely speaks to the role of parental advocacy in education and the educational reform movement, in particular, for those students from marginalized populations

The parents in this study were the driving force behind their child's education. They were present, involved, and informed about their child's unique learning needs. It is important to note that the theme of parental advocacy was the most frequently mentioned by parents (see Table 25). When Parent 1 (P1) was asked what her role was in her child's academic and social-

emotional outcomes, she responded that her advocacy responsibilities made up “85% because a parent knows their child’s capability. We know how much they can do.” Parent 2 (P2) believed that parents needed to be “tuned in” to their child’s education and should let teachers know that they were there if help were needed.

Table 25

*Parent Interview Responses About Their Role as Their Child's Advocate*

| Parent participants | Excerpts  |
|---------------------|---|
| P1                  | I made it a point to get to know all his teachers. I made it a point to show up every single day after school. I started requesting teachers. My role was eighty-five percent because a parent knows their child's capability. They know how much they can do.  |
| P2                  | It was always just...get him into the classroom, let the teacher work with him for a month, and then make contact with the teacher to see if they notice what's going on with him. I think as a parent, you have to be tuned in. My knowledge of the educational world has probably made an impact. As far as the academics go, they always had what they needed because I was very aware. I made sure they knew I was there if they needed help. |
| P3                  | I had a tutor supporting him at home because I really didn't feel like the school was giving him enough. I contacted the gifted coordinator at the high school and said, “This is my son. He is autistic and gifted and he has this passion for X Y Z.  |
| P4                  | My husband and I will often say that, thank goodness we both taught, that we have that ability to be there for the IEPs, to go to the school if we need to for extra meetings, that we can email the teachers and we can articulate what we're trying to tell them very clearly. I don't believe it would have been the same outcome for Caddy at all, had we not been able to do that  |
| P5                  | I IEP'd the team monthly. I threatened to bring a parent advocate. I set the standards on what the goals were. I made my demands at the first IEP.  |

During the qualitative interviews, parents shared their experiences of advocating for their child’s education (see Table 26). By the time Parent 1 (P1) found the appropriate placement for her child at the end of third grade, she described her child’s general education experiences as a “cattle chute.” She stated that if twice-exceptional children were “pointed in the right direction

down the corral, they were going to get through general education, but if they were turned sideways, forget it.” Parent 4 (P4) homeschooled her child until fifth grade due to severe stress and anxiety caused by unaware and inexperienced teachers and administration.

Table 26

*Parent Interview Responses to Their Child's Overall School Experiences*

| Parent participants | Excerpts  |
|---------------------|---|
| P1                  | My general opinion of general education is a “cattle chute” ...if your child is pointed in the right direction down the corral, they are going to get through general education, but if they are turned sideways, forget it. They would count the number of times he got up from his chair in a day instead of teaching him how to sit at his desk. |
| P2                  | He was able to kind of get by with elementary school. He's always been in general education. He's always managed to make it work. It wasn't until recently, like within the last couple years, that he struggled. It's not that he was trying to be defiant; he just didn't understand the necessity behind it [school].                            |
| P3                  | Because of his impulsivity, he was bullied heavily in elementary school. Instead of me being up against it [school administration] all the time I was hoping for a little bit more professional support and guidance.   |
| P4                  | We homeschooled him first and second grade. We tried to put him back into school in second grade and the principal and the teacher were a nightmare. So, we pulled him within two weeks. Fourth grade, he had a teacher that caused severe anxiety in him so he couldn't even go to school for three weeks because he was throwing up every day,    |
| P5                  | The school was horrific!  |

### Summary

The quantitative findings presented in Chapter 4 indicate teacher awareness about twice-exceptionality; however, this awareness has not translated into confidence in diagnosing and supporting twice-exceptional students effectively in the classroom. The findings also report the lack of training in the educational community on the topic of twice-exceptionality, highlighting specific areas on which training should focus. The qualitative data collected from the parent participants reflects the difficulties that parents of twice-exceptional children experience as they

try to advocate for their child's unique learning needs. Chapter 5 discusses these findings in relation to previous research and makes some recommendations for supporting teachers in serving twice-exceptional students effectively.

## CHAPTER 5: DISCUSSION AND IMPLICATIONS

The purpose of this study was to explore and understand the depth and breadth of awareness and training about twice-exceptionality among teachers through the perceptions and lived experiences of parents and teachers of twice-exceptional children. In the previous chapter, the results and analysis of the quantitative and qualitative data were presented.

Chapter 5 presents a summary of the study, a discussion of the findings, the implications for practice, the recommendations for future research, the researcher's motivation for conducting this study, and the conclusions. The data analyses show that, while there is a growing sense of awareness about twice-exceptionality, there remains a considerable lack of teacher training about the identification protocols for, as well as the characteristics, and behaviors of twice-exceptional students. The data also revealed significant apprehension among teacher respondents about their ability to address these students' unique learning needs in the classroom. The lack of professional awareness and training had led many parents to become their child's primary advocate; they worked closely with the teachers to help them understand their child's unique learning and social-emotional needs.

### **Discussion of Findings**

The following information highlights the researcher's conclusions using the data presented in Chapter 4. A total of 58 teachers and administrators were invited to participate in the Teacher Awareness of Twice-Exceptionality (TATE) survey. The quantitative survey focused on teachers' levels of awareness and training about twice-exceptionality. The qualitative in-depth semi-structured interviews were conducted with five parents of twice-exceptional children. The interviews explored the quantitative findings in relationship to their experiences parenting and educating their children. This study served three main purposes. First, it

examined the educational awareness about twice-exceptionality within our academic institutions, thus contributing to the growing body of research in the field. At the same time, it narrowed the gap between gifted education and special education research by promoting a stronger understanding of their commonalities rather than their differences. Second, it explored the role of teachers in the academic success of twice-exceptional students. Third, it focused on how parental awareness and advocacy influenced the academic outcomes of twice-exceptional students. This study thus gave a voice to parents of twice-exceptional children who, like many parents, have been at the forefront of advocacy and educational reform throughout history.

### **Research Question 1**

The first research question of this study was: What factors influence teachers' awareness and training about twice-exceptionality?

### **Findings on Awareness**

This study reported several results on teacher awareness about twice-exceptional students and their impact on the students' educational outcomes. It is important for teachers to understand both the concepts of giftedness and learning disabilities, which have complex characteristics and involve particular behaviors and to recognize that they are not mutually exclusive (Allen, 2017; Jones, 2014; Krochak & Ryan, 2007).

Descriptive analyses of specific survey items across the three surveyed school districts showed that the vast majority of respondents reported that they knew children who were gifted and talented as well as students with Autism or Asperger's syndrome. While the majority of respondents answered positively to knowing a child who had both exceptionalities, many more teachers stated that they were not sure or had never known a twice-exceptional child as compared to knowing a child with only one exceptionality. This sentiment was shared by Parent

(P1) when she stated that in her experiences, teachers saw the disability and not the exceptionality. These findings led the researcher to conclude that the respondents may not have had adequate information and experience on how to identify a student with more than one exceptionality. The coding of open-ended qualitative questions about teachers' perceptions and beliefs about twice-exceptionality confirmed this conclusion; teachers mentioned words and phrases such as "lack of awareness," "misunderstood," and "need training." This finding aligns with previous research which shows that awareness of dual exceptionalities is generally low within the educational community but that, however, teachers desire more information (Allen, 2017; Brody & Mills, 1997; Foley-Nicpon et al., 2011; Jones, 2014; Kaufman, 2018; VanTassel-Baska, 2015).

Despite the high level of uncertainty about not knowing or being unsure about knowing a twice-exceptional child, there were, however, a majority of teacher respondents who acknowledged knowing a child who was twice-exceptional. This may imply that there was more awareness among the teacher population targeted in this study compared to the general teacher population. This may be attributed to two main factors. First, the majority of teacher respondents in this study work in the same district as the researcher. As a result of her work in the area of twice-exceptionality, the researcher has developed and conducted training modules and professional development pathways within the schools surveyed. These training sessions covered topics related to gifted, diverse learners and twice-exceptionality, which may have affected the level of awareness among teachers.

Additionally, the researcher's school district had been actively offering training to staff, leading to the gifted and talented educator certification (GATE). As a result, respondents in this district showed increased participation in gifted and talented workshops. Interestingly, when

respondents were asked if they felt their training was adequate in this area, those who had more training hours in gifted and talented education from District 1 actually had higher levels of dissatisfaction with its adequacy than did the teacher respondents from the two districts who reported fewer hours of training. This implies that the quality of training may be more important to the teachers than the quantity of training. Second, the increased awareness about twice-exceptionality among the teacher population surveyed may also be attributed to teachers' demographic characteristics: Most of the teachers had been teaching for over 15 years and may have had more experiences and training on the topic of special needs or giftedness.

While studies into the duality of giftedness and learning disability are relatively new in educational research, the results from this study show that this information is beginning to reach teachers. The broadening awareness on dual exceptionalities was evident from participant responses; the majority of respondents recognized that giftedness and learning disabilities could both be present in a student and that gifted students could be eligible for special education services. Furthermore, when respondents were asked to define twice-exceptionality based upon their current understanding, the majority of respondents gave definitions of twice-exceptionality using appropriate terms. They incorporated a combination of words related to both giftedness and learning disability, including "gifted," "high," "excels," and "GATE," "learning disabled," "special needs," "Autism," and "deficits." Although a few respondents stated that they were unsure or needed to read more about the topic of twice-exceptionality, most of them demonstrated an emergent understanding of the concept of dual exceptionalities. This data shows an increased understanding of teachers that special education and giftedness are not mutually exclusive (Baldwin et al., 2015; Kaufman, 2018; Leggett et al., 2010).

Despite the high level of awareness demonstrated by the teacher respondents, the



elevated uncertainty they demonstrated when asked if gifted students could be served for both giftedness and disabilities simultaneously is cause for concern. The data showed high theoretical understanding and awareness but low levels of confidence in supporting these students in practice in the classroom; teachers expressed a range of apprehensions and concerns about this task, which they perceived as being overwhelming. They felt unprepared to address these challenges without adequate training and support. Their uncertainty was also evident from the responses they gave when asked about their perceptions of the most pressing issues facing educators when meeting the needs of twice-exceptional students. The respondents consistently mentioned training. The majority of other challenges reported were related to classroom issues such as class size, curriculum resources, administrative support, behavior management, and the overall demands of the job. While teacher respondents recognized the needs of twice-exceptional students, their responses reveal that they did not feel prepared to serve them in an inclusive environment adequately.

The quantitative data showing growing awareness about twice-exceptionality was encouraging. The researcher also sought to discover the depth of respondents' knowledge on the topic by asking about the specific strengths and weaknesses of twice-exceptional students in two formats; using open-ended and closed-ended questions. The strengths most frequently cited by teachers were these students' ability to grasp abstract concepts more deeply, their superior imagination and creativity, their extreme sense of curiosity, and heightened ability to focus intensely for extended periods in an area of interest. It was interesting to note from the survey responses that there was a discrepancy between the open-ended responses to the question on strengths versus the closed-ended responses. When teacher respondents were asked in a closed-ended format to rank the strengths of twice-exceptional students, the respondents stated

imagination, curiosity, and problem-solving skills as the greatest strengths. However, when asked to list three of the greatest strengths that benefit twice-exceptional students in an open-ended format, teachers ranked the same three categories as the least beneficial. This may suggest that with specific choices to choose from, teachers' surface-level knowledge or awareness of student's strengths allowed for a more accurate evaluation. This is evidenced by the research which clarifies teachers' challenges in recognizing and capitalizing on the often masked strengths of twice-exceptional students (Baldwin et al., 2015; Bianco & Leech, 2010b; Reis et al., 2014; Ronksley-Pavia, 2015; Rubenstein et al., 2014; Willard-Holt et al., 2013). With a deeper understanding and more experiences with twice-exceptional students, the researcher believes that the discrepancy between open-ended and close-ended responses regarding the strengths exhibited by twice-exceptional students would be much narrower.

Respondents were also asked to describe the challenges they believed twice-exceptional students struggled with the most at school. The respondent's answers showed an understanding of the basic challenges facing twice-exceptional students in the classroom. The two most frequently cited challenges were the students' poor social skills and the discrepancies between their verbal ability and academic performance. Both teacher respondents and parent participants mentioned that poor social skills were a challenge. Both groups agreed that the students' poor communication skills affected their academic performance. This impact has been recognized by several researchers in the field (Baldwin et al., 2015; Baum & Owen, 1988; Baum et al., 2017; Silverman, 2005; Winebrenner, 2003). Their deficits in social communication such as cooperation, positive peer relations, and the inability to follow directions have a direct influence on their educational outcomes (King, 2005; Nielsen & Higgins, 2005; Stichter et al., 2010). Addressing and supporting the social and communication needs of twice-exceptional learners is

as important as addressing their academic needs.

Teacher respondents, as well as parent participants, both agreed that twice-exceptional students have advanced verbal abilities. The discrepancies observed between the students' verbal skills and their academic achievement, however, often left teachers hoping that their verbal abilities matched their performance and social abilities. However, when verbal skills do not match classroom performance or achievement, teachers are left perplexed, which often leads to false perceptions of laziness or lack of motivation to learn. Parent 4 (P4) explained this discrepancy best when she discussed her child's "social asynchrony." She stated that he sounded like he was 35 years old but acted like a second-grader. The discrepancy between academic performance and verbal abilities, also known as the ability-achievement discrepancy (AAD), has been extensively reported in research (Bade, 2015; Maddocks, 2018; McCallum et al., 2013; McKenzie, 2010; Rowe et al., 2013; Rubenstein et al., 2013).

The responses from the qualitative interviews with parent participants confirmed the quantitative findings regarding teachers' awareness of twice-exceptionality. Some parent participants experienced teachers who were aware and others who were unaware. The inconsistencies they experienced were reflected by Parent 1 (P1), who stated: "I think that they see the disability, and they don't see the exceptionality." She disclosed that she honestly didn't think her son's teachers knew what twice-exceptionality meant. She believed that perhaps five to seven of her sons' teachers, spanning kindergarten to twelfth grade, had some level of awareness. Parent 5 (P5) reiterated the sentiments of other parents by affirming her child's junior high school, "didn't know a thing about anything." Parent 3 (P3) had teachers who noticed her son was exhibiting some unusual behaviors in first grade. At the time, her family lived in Beijing, China, where her son attended a private school where most of the teachers were

either Australian or Dutch. Early into her son's first grade year, the staff at the school asked her if she knew about ADHD, sensory processing disorder or giftedness. She stated that not only did the teachers bring it to her attention, but they also made every accommodation and program option available to address her son's giftedness and learning disabilities.

When Parent 4 (P4) discussed her son's teachers' levels of awareness, she disclosed that the teachers who "had some special education background...have understood, [while] others have been perplexed by him because of [his] social asynchrony." She also admitted that she felt that over time, teachers were becoming more and more aware that twice-exceptionality existed. However, there were still some misconceptions about the characteristics and traits of twice-exceptional students due to a lack of training.

### **Teacher Training Findings**

Nearly all of the teacher respondents stated that their training was less than adequate to very inadequate or that they had never attended training on the topic of twice-exceptionality. An overwhelming majority of teacher respondents admitted that they wanted more information and support on how to identify and meet the needs of twice-exceptional students. Research on marginalized group of students confirms that successful academic and social-emotional outcomes are best achieved when teachers are specifically trained to understand and know how to support their unique learning needs (Allen, 2017; Bangel et al., 2010; Berman et al., 2012; Crepeau-Hobson & Bianco, 2011; Moon et al., 1999; Wright, 2016). With this understanding, the researcher asked teacher respondents to clarify the types of training in which they had participated. They were also asked if they felt that their current level of knowledge was adequate enough to identify and address the needs of twice-exceptional learners successfully in their classroom.

In education, “an ounce of awareness is worth a pound of cure” (p. 84) and there are no impossible situations or groups of students who we are not able to support and serve as long as we first recognize and acknowledge that they exist (Allen, 2017). The researcher believes that awareness of twice-exceptionality begins with teachers who have had prior personal and professional experiences with students who they believed were twice-exceptional or “quirky” and saw the need to seek out opportunities for professional development. Teachers who had more experience and training in the areas of gifted education and special education were less apprehensive about the increased heterogeneity of students in their classroom and were able to recognize the characteristics of dual exceptionalities better. The data on the adequacy of training among teacher respondents in Districts 1, 2, and 3 showed that the increasing awareness levels of teachers, could, in turn, have resulted in teachers feeling compelled to receive more training as their level of curiosity and advanced knowledge increased.

The results of this study are optimistic as they show increased awareness of twice-exceptionality. However, they also demonstrate that teachers have not and are not receiving adequate training on dual exceptionalities. Districtwide professional training opportunities are usually a top-down, data-driven decision based upon the needs of the majority of the student population. Twice-exceptional students continue to be viewed as a fringe student population due to insufficient identification protocols and inaccurate information about dual exceptionalities; thus, training opportunities will remain sparse. Without training targeted to address the needs of marginalized groups of students, teachers will continue to make pedagogical decisions based upon outdated research, personal misconceptions and attitudes, and decisions about classroom behaviors tainted by biases towards students with disabilities (Bangel et al., 2010; Bianco, 2005; Lo, 2014; Lummiss, 2016). These stereotypical beliefs about giftedness conflict with the

expectations held about students with learning disabilities, causing frustration, anxiety, and unsuccessful outcomes for the student and teacher.

From the parent participant perspective, opinions and perceptions regarding teacher training for twice-exceptionality were measured. Two of the parent participants did not share any information regarding teacher training because they were not aware of the specific trainings their child's teachers had participated in. Parent 3 (P3) believed teachers had no training based upon the evidence she witnessed in the classroom of the lack of positive outcomes for her child. Parent 3 (P3) was particularly concerned about the lack of knowledge and understanding in high school and stated that often times her child's unwanted behaviors in class were a result of unmet or poorly met needs which her child's teacher was not equipped to understand or resolve. Parent 3 (P3) had hoped that by advocating for her child's educational needs, the effects of their collaboration would result in more support and guidance for her child, however, it had the opposite effect. She felt as if the teachers and staff were against her all the time and her advocacy efforts were an uphill battle. Parent 1 (P1) and Parent 2 (P2) both acknowledged that most teachers had good intentions, however, they were not given the tools, resources or money necessary to help their children.

### **Research Question 2**

The second research question of this study was: What role does teacher awareness play in the academic success or failure of twice-exceptional students? As discussed, without teacher awareness, the likelihood of academic success for twice-exceptional students is noticeably diminished. Awareness of how and why a student behaves in, responds to, and produces certain situations plays a key role in the student's success as well as in the overall teacher-student relationship. The impact of the teacher-student relationship cannot be underestimated (Hughes

& Kwok, 2007; Roorda, Koomen, Spilt, & Oort, 2011; Spilt, Hughes, Wu, & Kwok, 2012; Spilt, Koomen, & Thijs, 2011; Wang & Neihart, 2015b). This relationship is even more critical for twice-exceptional students who thrive in a psychologically safe environment where they can have authentic interactions with teachers who not only understand, acknowledge, and validate their strengths but also accommodate their weaknesses (Baum et al., 2017; Reis & McCoach, 2000; Rowe et al., 2013; Wang & Neihart, 2015b; Whitmore, 1980). The key to a positive rapport with twice-exceptional students is a teacher who is understanding and tolerant of their asynchronous behaviors, aware of their uneven academic patterns, and willing to improve their professional and personal capacities to support them through continued training and professional development opportunities (Baum et al., 2017).

While a large percentage of teacher respondents in this study believed that they had the most influence over the academic success of twice-exceptional students, a larger percentage of them believed that the combination of self-directed learning outside of school and the influence of their parents had more impact on their academic outcomes than teachers alone. This finding is supported by previous research on twice-exceptionality, which points out these students' in-depth, "obsessive-like" learning occurring outside of school, as a hallmark trait of gifted students with Autism. These students may appear apathetic and uninterested in learning because of their highly-focused learning in areas of interest outside school, which may take precedence over classroom content. The student may be seen as lazy or unmotivated to learn by the untrained educator, which may dramatically affect the teacher's ability to connect with the student.

Without specific training and experience, the ability of the teacher to influence the outcomes of twice-exceptional students positively is doubtful which could lead to strained and antagonistic relationships among the parties involved. These concerns were evidenced by the

statements of teacher and parent participants in this study. Teachers stated that meeting the needs of the consistently-increasing diversity of learners in their classroom poses an extreme challenge without the necessary training, support, and resources. Parent participants agreed that teachers should play an integral role in their child's academic success but acknowledged that more often than not, they had to inform and advocate for their child's learning needs with nearly every one of their child's teachers to ensure a basic level of academic success.

While the majority of teacher respondents recognized the need for increased awareness and training, the results of the survey data demonstrated that the educational community, at large, does not view the needs of twice-exceptional students at a level of crisis evidenced by the lack of across-the-board professional development opportunities available for teachers on the topic. As demonstrated in the theoretical frameworks for this study, Forester's critical pragmatism (Forester, 1989, 1999, 2013) and Bandura's social learning theory of self-efficacy (Bandura, 1977), educational change begins with teachers who are willing to challenge their own status quo, critically analyze their pedagogy, explore undiscovered alternatives to their current classroom practices, and become self-efficacious. According to the critical pragmatic theory, the motivation for this kind of pedagogical transformation is often due to personal experiences with a student or events that have occurred for which the teacher has struggled to find solutions. The lack of pedagogical transformation and training may be attributed to a variety of factors. These factors include the relatively smaller percentage of twice-exceptional children compared to other students with diverse learning needs, the lack of personal experiences with a twice-exceptional student, insufficient identification protocols, and teacher bias or inaccurate perceptions about dual exceptionalities.

When teacher respondents were asked about their perceptions or thoughts about meeting



the needs of twice-exceptional students in the classroom, the vast majority of respondents had significant doubts about their level of effectiveness. When the researcher explored these results in relation to Bandura's social learning theory of self-efficacy, it was determined that teachers lacked a sense of efficacy. This lack of self-efficacy may be due to limited opportunities to engage in the four mastery components required for effectiveness according to Bandura theory: enactive self-mastery, role-modeling, verbal and social persuasion, and physiological cues. Due to their lack of training and limited experiences with twice-exceptional students, the factors required for self-efficacy had not been met, explaining their apprehension and concerns about serving twice-exceptional students in their classroom.

The researcher believes that the academic success or failure of twice-exceptional students is highly influenced by the relationship the student has with their teacher. The ability of a teacher to understand, accommodate, and connect with a student begins with teacher awareness. The teacher respondents in this study clearly acknowledged the unique learning needs of twice-exceptional students and demonstrated a strong commitment to improving the outcomes of these students through more training, resources, classroom support, and professional development opportunities.

### **Research Question 3**

Research Question 3 was: How do parental awareness and advocacy influence the academic outcomes of twice-exceptional students in school? During the qualitative data analysis of parent interviews, the researcher noted that the theme of advocacy was the most frequently coded topic. All the parent participants in this study not only attended IEP meetings but often instigated them. Existing research confirms that most parents attended their child's Individualized Education Program (IEP) meetings after the latter was diagnosed with a disability,

highlighting the importance parents place on their child's education (Spann, Kohler, & Soenksen, 2003). Other research on parental advocacy also found that after diagnosis, parents immediately begin to establish a professional-level knowledge base of information on their child's disability to help support them through their schooling (Coleman, Baldwin, & Perales, 2018).

The parents of twice-exceptional children in this study seemed to be following in the footsteps of parents of special needs children, whose advocacy became a call to action leading to legislative changes and educational reform. However, the experiences of the parent participants in this study were more complex as their child's diagnosis involved the identification of two or more exceptionalities. Unlike researching and advocating for a child with a single disability or single giftedness, parents of twice-exceptional children must simultaneously advocate for their child's disability while also protecting and supporting their child's giftedness (Besnoy et al., 2015).

Early in their child's school experiences, the parent participants in this study realized that their child's school was not able to address both exceptionalities. All parent participants, except Parent 3 (P3) whose child attended a school in China, had recognized their child's gifted abilities long before they started school. However, in all cases, the child's gifted abilities were never acknowledged, assessed, or officially documented. Additionally, their children were never recommended for or placed in any accelerated or gifted and talented programming. This study's results support previous research, which shows that twice-exceptional students, particularly economically disadvantaged students, culturally-diverse students, or students of color, are not being diagnosed (Barnard-Brak et al., 2015; Mayes et al., 2014; McCoach et al., 2001).

Parents also found it challenging to receive a diagnosis of a learning disability. As is

evidenced by the complexity of dual exceptionalities, three of the children in this study did not receive a learning disability diagnosis until middle school or later. Most poignantly, Parent 1 (P1) related the educational system to that of a “cattle-chute” explaining that when children are pointed in the right direction “down the corral” with average abilities and without any specialized or unique learning needs, they have a greater chance to succeed in school. However, when a child is “turned sideways,” that is, not provided with the specialized instruction he needs, his academic outcomes often suffer if continuous intervention and advocacy are not offered by the parents.

The parent participants recognized the gaps in their child’s educational experiences and filled them with the extra enrichment they needed outside of school such as by hiring tutors, enrolling their child in summer enrichment programs, and engaging their child in various psycho-educational evaluations which come at the expense and time of the parent. Parent 1 (P1) learned how to make requests to certain teachers who were more open to teaching children with learning differences. Parent 2 (P2) stated that as a parent, she had to stay “tuned in” and be very aware of what was happening at school. Parent 3 (P3), on the other hand, made more financial investments; she paid for tutors because she felt the school was not addressing her son’s gifted abilities. Parent 4 (P4) expressed her gratefulness that her husband and her were both educators so they could appropriately speak to their son’s needs and participate in all IEP’s and extra meetings. Parent 5 (P5) shared she had to threaten to hire an advocate and call frequent IEP meetings to set the appropriate standards for her son’s abilities and disabilities.

The researcher believes that the awareness and advocacy of parents had a direct influence on the academic outcomes of the twice-exceptional students in this study. This is reflected in the parent participants’ responses, which clarify their belief that, without parental advocacy through

supervision, dissemination of information to teachers, and continuous monitoring of their daily experiences, their child's academic outcomes would have been very different.

### **Implications for Practice**

Several implications for practice arise from this study. First, the current level of training about twice-exceptionality is insufficient to non-existent. Due to dwindling federal funding for gifted and talented programs, districts may want to consider using special education resources to fund professional development opportunities on twice-exceptionality. As a result of this study, the researcher partnered with her district's special education and gifted education coordinators to develop a series of professional development pathways on twice-exceptionality funded through special education resources.

The researcher's experience in GATE training, the current study's findings as well as previous studies in the area of twice-exceptionality inform about the types of training that would prepare twice-exceptional teachers more effectively for serving diverse students. Research on the benefits of professional development of teachers is abundant. However, for general education teachers with twice-exceptional students included in their classroom, professional development should incorporate embedded classroom learning that utilizes the skills of the special education teacher in combination with the general education teacher (Jones, 2014; Shaffer & Thomas-Brown, 2015; Tzivinikou, 2015). Learning outside the classroom should include discussions about the concomitant characteristics of dual exceptionalities, the management of the children's unique behaviors in the classroom, extensive discussions about classroom strategies that focus on strengths rather than disabilities, and alternative methods of performance-based assessment that allow students to demonstrate their knowledge in a variety of ways.

Most teachers believe that the general education classroom is the ideal setting for most students, but as the teacher respondents in this study expressed, they feel ill-equipped to meet the diverse learning needs of twice-exceptional students. Considering that the current research findings have confirmed the positive outcomes of teacher training, it may be beneficial from a practical standpoint, to place students with dual diagnoses in general education classrooms with teachers who have had additional training and education in exceptional children populations. Further implications for practice can focus on the role of administrators and district personnel. Results from this study confirmed that while teachers' awareness is increasing, there is considerable apprehension among teachers and parents about the ability of schools to provide information and to meet the needs of twice-exceptional students effectively. When asked about the role of administrators, teacher respondents stated that school administration should offer continuing education, teaching assistant support, access to experts such as mentors and coaches who have worked with twice-exceptional students, and ongoing learning opportunities for teachers.

### **Researcher's Motivation for Conducting This Study**

This study was a labor of love for the researcher. As a parent of a gifted son on the Autism spectrum and a general education teacher for over two decades, the researcher had, through her professional life and experiences with her son's teachers, witnessed firsthand the lack of awareness about twice-exceptionality. Like the parents in this study, the researcher was aware of her son's gifted abilities before his second birthday. His in-depth factual data retention and ability to visually recall and draw random things, such as instrumentation panels of cars or all sections and instruments of an orchestra with exact precision, was remarkable and mysterious. These amazing abilities also came with major developmental delays: he did not speak in

sentences until he was four years old, had little to no ability or desire to play with other children, and frequently suffered from severe emotional meltdowns.

The researcher's son was first diagnosed with High-Functioning Autism (HFA) by the local public school district in preschool. His teachers provided autism-related services as prescribed by his IEP with some success, working to improve behavioral issues aimed at making him successful in an academic setting. While all of his teachers were amazed by his in-depth knowledge and unique verbal abilities, his strengths were never acknowledged, assessed, or accommodated. There were no attempts to include him in advanced academic programming or to suggest curriculum modifications that would capitalize on his strengths or address his weaknesses.

When the researcher's son was in third grade, she asked the IEP team if he could be provided opportunities to demonstrate his knowledge in a way that was better suited to his strengths, such as a presentation or a project rather than a scantron test. The school psychologist remarked that the researcher was asking for a "Cadillac education," and for him to be successful in school, he would need to be able to demonstrate his knowledge in the same way as all the other students. When her son was in fourth grade, his teacher inquired, "Aren't there schools for kids like him?" in response to his expressed difficulty in trying to accommodate for her son's asynchronous academic abilities.

As a teacher, the researcher was keenly aware of how challenging it was to teach her son, and her empathy as an educator began to cloud her intuition as a mother. As a parent, the researcher began to doubt herself. Perhaps, she was overestimating her son's giftedness and touting abilities that were not really exceptional. She became reluctant to ask for accommodations that might require teachers to think "outside the box" or cause extra work for

them, worried that they would think she was using her position as an educator to ask for more than what her son needed or more than he deserved.

The researcher's personal and professional experiences about the lack of awareness of twice-exceptionality in the educational community were becoming oppressive. The universal perception of twice-exceptionality as an oddity and, therefore, the lack of related ongoing professional development about it was a primary concern to the researcher. Most of the teachers and administrators she had encountered over the years were not sure if they had ever met a twice-exceptional student, so the immediate issue of addressing their educational and social-emotional needs in the classroom was not a priority. However, with the inclusion of students with special needs into the general education setting, suddenly, every classroom had at least one student with a diagnosed disability. Despite this policy change, the researcher observed that teachers were not being trained accordingly. This observation was supported in the current study, as the teacher respondents expressed similar concerns about their lack of training.

From the researcher's experiences, a major obstacle to successful educational outcomes for her son was his teachers' inability to look past his Autism label and their stereotypical beliefs about giftedness to recognize his strengths as a prime influencer of his weaknesses. Another impediment in her son's educational outcomes was the lack of teacher flexibility about modifications to classwork and accommodations that would allow her son to demonstrate his mastery of the content matter more effectively.

### **Recommendations for Future Research**

This study provided valuable information on the perceptions of teacher respondents and parents of twice-exceptional children about teacher awareness and training on twice-exceptionality. The implications for practice have also been discussed, and recommendations for

better awareness, training, and diagnosis of twice-exceptionality were also discussed.

The first recommendation for future research would be to compare teacher awareness levels in districts that have widespread gifted and talented (GATE) teacher certification programs with districts that have not made GATE certification a priority. An examination of how well GATE certified teachers are prepared to identify, diagnose, and differentiate for gifted learners as compared to teachers who have not been GATE certified would further elucidate the importance of GATE certification. Secondly, the current study could also be repeated with a larger teacher respondent and parent participant sample, making the results more generalizable. Thirdly, the study could be replicated with teachers and parents at various private schools that service twice-exceptional students, this time focusing on the types and quality of training that the teachers had benefited from.

Future research in this area could also focus on the impact of training on teachers' self-efficacy beliefs about teaching a diverse population of students in their classroom; this could be done by conducting qualitative pre- and post-training interviews with teacher respondents to shed light onto how their professional development experiences affected their confidence level. Other related research could evaluate the impact of relevant teacher training on the academic outcomes of diverse students. It would also be interesting to replicate this study comparing the impact of pre-service and in-service professional development of teachers on their awareness, identification, and methods of instruction for twice-exceptional students. This would shed light onto whether teacher credential programs have begun to bridge the gap between special and gifted education by providing new teachers with the tools they need to include all learners skillfully in the classroom.

Additional research could be carried out from a parental perspective, which would focus



on the impact of parents' ability to advocate for their children based on their linguistic, socio-economic, and cultural backgrounds. There is considerable research on the role of parental advocacy in education and educational reform, but limited research has targeted parents of twice-exceptional students and their ability to advocate for their children who come from diverse demographic backgrounds.

### **Summary and Conclusion**

The findings of this study contributed to the emerging research in the field of twice-exceptionality by exploring teacher awareness and training and their influence on the academic and social-emotional outcomes of students. This study also provided insight into the critical role that parental advocacy played in shaping their children's experiences.

While the data reported increasing awareness among teachers about twice-exceptionality, most teachers lacked the in-depth knowledge necessary to identify, assess, and provide differentiated instruction for twice-exceptional learners. As the population of twice-exceptional students continues to increase, it is exceedingly important for teachers to receive the necessary training to identify and refer them to teachers and programs that will best address their unique learning needs.

This study also provided valuable information for school administration and district personnel when considering professional development opportunities for their staff. School districts need to provide their teachers with the essential knowledge needed to identify the basic characteristics of twice-exceptionality with a focus on the importance of bridging the gap between gifted education and special education for all students included in the general education setting.

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## APPENDICES

## Appendix A

## Teacher Survey



2e Teacher Survey

## 1. Teacher Experience and Perceptions

1. Please tell me what type of school you work in.

- ☐ Public school
 ☐ Charter school
- ☐ Private school
- ☐ Other (please specify)

2. Please tell me what grade level(s) you're involved with.

- ☐ Pre-K
 ☐ High school
- ☐ Elementary school
 ☐ Post-secondary
- ☐ Middle school
- ☐ Other (please specify)

3. Which populations do you work with **MOST**?

- ☐ Gifted students
- ☐ Learning disabled students
- ☐ Twice-exceptional students
- ☐ "Typical" students

4. Please indicate the licensures and/or credentials you have. (Please check all that apply)

- |  |  |
|--|--|
| <input type="checkbox"/> General education           | <input type="checkbox"/> School Counselor                            |
| <input type="checkbox"/> Gifted Education Specialist | <input type="checkbox"/> Psychologist (school, clinical, counseling) |
| <input type="checkbox"/> Special Education           | <input type="checkbox"/> Speech Language Pathologist (SLP)           |
| <input type="checkbox"/> Administration              | <input type="checkbox"/> Other                                       |

5. Do you believe the term "twice-exceptional" is understood by the general population?

☐ Yes

☐ No

6. Do you know any twice-exceptional children?

☐ Yes

☐ No

7. Do you believe that giftedness and learning challenges can be present in the same individual?

☐ Yes

☐ No

☐ Not sure

8. Do you believe gifted students could be eligible for special education services?

☐ Yes

☐ No

☐ Not sure

9. Do you believe that students with special needs could also receive gifted services?

☐ Yes

☐ No

☐ Not sure

10. Do you believe that students can be served for both gifts and disabilities simultaneously?

☐ Yes

☐ No

☐ Not sure

11. Teachers and other school professionals have appropriate information and methods for determining which students demonstrate twice-exceptional characteristics.

Completely agree

Somewhat agree

Neutral

Somewhat disagree

Completely disagree

☐☐☐☐☐



12. In the past year, have you encountered students in your personal or professional experience who exhibit the profile of a twice-exceptional student?

- ☐ Never
 ☐ Frequently  
☐ A few times
 ☐ Not sure  
☐ Often

13. Educators need more information and support on how best to address the needs of twice-exceptional students.

| Completely agree      | Somewhat agree        | Neutral               | Somewhat disagree     | Completely disagree   |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

14. How confident are you that your school does all it can to help the following groups of students succeed?

|                            | Very confident        | Somewhat confident    | Not very confident    | Not at all confident  |
|----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Gifted students            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Special Ed/LD students     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Twice-exceptional students | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Typical students           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

15. How well informed on 2e issues do you think your school administration is?

| Not at all informed   | Not very well informed | Somewhat informed     | Very well informed    |
|-----------------------|------------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> |

16. What do you need most from your school administration to best meet the needs of the 2e students at your school?

17. What percentage of gifted students in your state do you estimate are twice-exceptional?

- ☐ less than 1%
 ☐ 11% - 15%  
☐ 1% - 5%
 ☐ Greater than 15%  
☐ 6% - 10%

18. How confident are you that your current understanding of twice-exceptionality enables you to make an appropriate referral for evaluation?

- ☐ Extremely confident
 ☐ Not so confident  
☐ Very confident
 ☐ Not at all confident  
☐ Somewhat confident



## 2e Teacher Survey

### 2. Teacher Knowledge

19. Estimate the number of in-services or workshop hours you have attended on the topic of Autism/Asperger's Syndrome.

- ☐ 0
 ☐ 5-6  
☐ 1-2
 ☐ 7+  
☐ 3-4

20. Estimate the number of in-services or workshop hours you have attended on the topic of Gifted/Talented.

- ☐ 0
 ☐ 5-6  
☐ 1-2
 ☐ 7+  
☐ 3-4

21. How adequate do you feel your training in special/learning disabilities (LD) education has been?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Very inadequate       | Less than adequate    | Somewhat adequate     | Very adequate         | No training           |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

22. How adequate do you feel your training in gifted education has been?

|                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Very inadequate       | Less than adequate    | Somewhat adequate     | Very adequate         | No training           |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

23. How often do you receive training or workshops for servicing twice-exceptional students?

| At least once a week  | At least monthly      | At least once a year  | Less than once a year | Never                 |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

24. How adequate do you feel your training in twice-exceptional education has been?

| Very inadequate       | Less than adequate    | Somewhat adequate     | Very adequate         | No training           |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

25. Do you personally know any children with High Functioning Autism/Asperger's Syndrome?

☐ Yes

☐ No

26. Do you personally know any children who are Gifted/Talented?

☐ Yes

☐ No

27. How would you define twice-exceptional?

28. Please rank order from 1 to 6 the factors you think should be considered when making referrals for evaluation of twice-exceptionality? *Let 1 be the most important and 7 be the least important*

|                                 |                      |  |
|---------------------------------|----------------------|--|
| 1<br>2<br>3<br>4<br>5<br>6<br>7 | <input type="text"/> | Behavioral difficulties in the classroom         |
| 1<br>2<br>3<br>4<br>5<br>6<br>7 | <input type="text"/> | Verbal, in-depth knowledge in areas of interests |
| 1<br>2<br>3<br>4<br>5<br>6<br>7 | <input type="text"/> | Parental concerns                                |
| 1<br>2<br>3<br>4<br>5<br>6<br>7 | <input type="text"/> | Peer relationships                               |
| 1<br>2<br>3<br>4<br>5<br>6<br>7 | <input type="text"/> | Performance on class tests                       |
| 1<br>2<br>3<br>4<br>5<br>6<br>7 | <input type="text"/> | Performance on class work                        |
| 1<br>2<br>3<br>4<br>5<br>6<br>7 | <input type="text"/> | Performance on standardized achievement tests    |

29. Which group do you believe impacts the educational outcomes of twice-exceptional students the most? (1=most, 5=least)

|   |                     |
|---|---------------------|
| <div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> </div> <div> <div></div> <div></div> <div></div> </div> | Parents             |
| <div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> </div> <div> <div></div> <div></div> <div></div> </div> | Teachers            |
| <div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> </div> <div> <div></div> <div></div> <div></div> </div> | Peers               |
| <div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> </div> <div> <div></div> <div></div> <div></div> </div> | Resource Specialist |
| <div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> </div> <div> <div></div> <div></div> <div></div> </div> | Other               |

30. Which group do you believe impacts the social-emotional outcomes of 2e students the most? (1=most, 6=least)

|   |                     |
|---|---------------------|
| <div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> </div> <div> <div></div> <div></div> <div></div> </div> | Parent              |
| <div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> </div> <div> <div></div> <div></div> <div></div> </div> | Teacher             |
| <div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> </div> <div> <div></div> <div></div> <div></div> </div> | Peers               |
| <div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> </div> <div> <div></div> <div></div> <div></div> </div> | School Counselor    |
| <div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> </div> <div> <div></div> <div></div> <div></div> </div> | social skills group |

31. Which of the following challenges do you feel impacts students with twice-exceptionality most frequently in school? (Please select 5)

- |   |   |
|---|---|
| <input type="checkbox"/> difficulty completing simple tasks | <input type="checkbox"/> discrepancy between verbal and academic performance skills |
| <input type="checkbox"/> poor organizational skills         | <input type="checkbox"/> poor social skills   |
| <input type="checkbox"/> does poorly on timed tests         | <input type="checkbox"/> difficulty with change                                     |
| <input type="checkbox"/> frequently off-task                | <input type="checkbox"/> cognitive inflexibility                                    |
| <input type="checkbox"/> immature compared to typical peers | <input type="checkbox"/> impulsivity  |

Other (please specify)

32. Which of the following strengths do you believe to be most beneficial for the successful academic outcomes of twice-exceptional students? (Please select 5)

- |   |  |
|---|--|
| <input type="checkbox"/> Ability to grasp abstract concepts | <input type="checkbox"/> Advanced vocabulary                     |
| <input type="checkbox"/> Imagination                        | <input type="checkbox"/> Memory, recalling details and facts     |
| <input type="checkbox"/> Curiosity                          | <input type="checkbox"/> Oral reading fluency                    |
| <input type="checkbox"/> Logical/linear thinking            | <input type="checkbox"/> Problem-solving and reasoning abilities |

33. What do you believe are three of the greatest strengths of twice-exceptional students?

|             |                      |
|-------------|----------------------|
| Strength #1 | <input type="text"/> |
| Strength #2 | <input type="text"/> |
| Strength #3 | <input type="text"/> |

34. What do you believe are three of the greatest difficulties for twice-exceptional students?

|               |                      |
|---------------|----------------------|
| Difficulty #1 | <input type="text"/> |
| Difficulty #2 | <input type="text"/> |
| Difficulty #3 | <input type="text"/> |

35. What are your perceptions/beliefs regarding the learning needs of twice-exceptional students?

36. In your experience, what do you believe are the most pressing challenges facing twice-exceptional students in school?



2e Teacher Survey

### 3. Teacher Demographic Data

37. What is your gender?

☐ Female

☐ Male

38. What is your age?

☐ 20-30

☐ 51-60

☐ 31-40

☐ 61+

☐ 41-50

39. Current teaching assignment

☐ Kindergarten

☐ 7th grade

☐ 1st grade

☐ 8th grade

☐ 2nd grade

☐ 9th grade

☐ 3rd grade

☐ 10th grade

☐ 4th grade

☐ 11th grade

☐ 5th grade

☐ 12th grade

☐ 6th grade

☐ Other (please specify)

40. What is your highest level of education?

☐ Bachelor's degree

☐ Doctorate degree

☐ Master's degree

☐ Education Specialist

☐ Other (please specify)

41. Total number of teaching experience.

☐ 1-5 years

☐ 16-20 years

☐ 6-10 years

☐ 21+ years

☐ 11-15 years

## Appendix B

### Parent Interview Questions

1. Given the inconsistent and complex identification procedures, I would like to hear about how you determined your child was twice-exceptional.
  - a. Have you ever received an official diagnosis of giftedness or disability?
  - b. If yes, who first diagnosed your child?
  - c. Which exceptionality was noticed/diagnosed/labeled first?
2. Discuss your feelings about the educational systems ability to meet your child's specific learning strengths and deficits.
3. Which group do you believe primarily influences the educational outcomes of your child?
  - a. Parents
  - b. Teachers
  - c. IEP goals
  - d. Peers
  - e. Self-directed/interest-based learning outside of school
4. In my survey on teacher's awareness, knowledge and training for twice-exceptionality, most teachers believed that they had the greatest influence on the *educational* outcomes of twice-exceptional students.
  - a. In your experiences as a parent, has that been the case?
  - b. How do you feel about that?
  - c. As a parent of a 2e son myself, my personal experience has been that self-directed, interest-based learning at home has had the most influence on my son's learning. Has that been the same for you?
5. What have been your experiences with teachers' awareness of twice-exceptionality?
  - a. Have you had to inform them about twice-exceptionality or explain what it is to them? If yes, were they receptive to the information?
  - b. Are you aware of any training your child's teacher had regarding twice-exceptionality?
  - c. Do you believe teacher awareness or lack thereof has affected the educational outcomes of your child?
6. What role has your awareness/advocacy played in the academic and social outcomes of twice-exceptional child?
7. What are your feelings about your child's future?
8. What issues cause you the most stress?
9. What do you want people outside the community to understand about twice-exceptional children?

## Appendix C

## IRB Approval



## INSTITUTIONAL REVIEW BOARD DECISION

☐ Exempt Review 45 CFR 46.101 ☒ Expedited Review 45 CFR 46.110 ☐ Full Board Review 45 CFR 46

|                  |   |
|------------------|---|
| Review Date      | 03/29/19  |
| IRB#             | 5109  |
| Title of Project | Teacher's Perceptions, Awareness and Knowledge of Twice-Exceptionality and their Effects on the Academic, Social and Emotional Outcomes of Students |
| Researcher/s     | Kimberly Hopwood  |

☒ **APPROVED**

Effective duration of IRB Approval: March 30, 2019 to March 29, 2020

This study is approved by CUI IRB.

Recommendations (not required for approval): many of your survey questions will result in categorical or ordinal data. In order to run most inferential statistics, you should revise the responses so that you meet the requirement for interval data - e.g., 1=completely disagree, 3=neutral, 5=completely agree; blanks instead of numerical response choices; likert scales instead of yes/no questions.

**For Exempt Approved, Please Note:** while your project is exempt from providing Informed Consent information to the IRB, your project must still obtain participants' informed consent.

**For Expedited and Full Board Approved, Please Note:**

a. The IRB's approval is only for the project protocol named above. Any changes are subject to review and approval by the IRB.

b. Any adverse events must be reported to the IRB.

c. An annual report or report upon completion is required for each project. If the project is to continue beyond the twelve month period, a request for continuation of approval should be made in writing. Any deviations from the approved protocol should be noted.

☐ **NEEDS REVISION AND RESUBMISSION**

☐ **NOT APPROVED**

Printed Name IRB Reviewer Dr. Eugene P. Kim

Signature of IRB Reviewer Kim, Eugene

Digitally signed by Kim, Eugene  
Date: 2019.03.29 16:34:18 -07'00'