

University of Northern Colorado

Scholarship & Creative Works @ Digital UNC

Dissertations

Student Research

5-2020

The Effects of Disability Labeling on Teachers' Referrals of Twice-Exceptional Children to Gifted Programs in Saudi Arabia

Amra Abdulrahman Mohammad

Follow this and additional works at: <https://digscholarship.unco.edu/dissertations>

Recommended Citation

Mohammad, Amra Abdulrahman, "The Effects of Disability Labeling on Teachers' Referrals of Twice-Exceptional Children to Gifted Programs in Saudi Arabia" (2020). *Dissertations*. 657.
<https://digscholarship.unco.edu/dissertations/657>

This Text is brought to you for free and open access by the Student Research at Scholarship & Creative Works @ Digital UNC. It has been accepted for inclusion in Dissertations by an authorized administrator of Scholarship & Creative Works @ Digital UNC. For more information, please contact Jane.Monson@unco.edu.

UNIVERSITY OF NORTHERN COLORADO

Greeley, Colorado

The Graduate School

THE EFFECTS OF DISABILITY LABELING ON TEACHERS'
REFERRALS OF TWICE-EXCEPTIONAL CHILDREN
TO GIFTED PROGRAMS IN SAUDI ARABIA

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

Amra Abdulrahman Mohammad

College of Education and Behavioral Sciences
School of Special Education

May 2020

This Dissertation by: Amra Abdulrahman Mohammad

Entitled: *The Effects of Disability Labeling on Teachers' Referrals of Twice-Exceptional Children to Gifted Programs in Saudi Arabia*

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

Accepted by the Doctoral Committee

Jennifer Ritchotte, Ph.D., Research Advisor

Amy Karol Graefe, Ph.D., Committee Member

Jason David Robinson, Ph.D., Committee Member

Hasan Zaghawan, Ph.D., Committee Member

Michelle Athanasiou, Ph.D., Faculty Representative

Date of Dissertation Defense _____

Accepted by the Graduate School

Cindy Wesley, Ph.D.
Interim Associate Provost and Dean
Graduate School and International Admissions

ABSTRACT

Mohammad, Amra Abdulrahman. *The Effects of Disability Labeling on Teachers' Referrals of Twice-Exceptional Children to Gifted Programs in Saudi Arabia*. Published Doctor of Philosophy dissertation, University of Northern Colorado, 2020.

The issue of biases associated with labeling students as gifted or as having a disability presents a significant challenge to educational professionals with regard to identification and the provision of services. In the presence of labels indicating giftedness, disability, and twice exceptionality, research consistently demonstrated biases on the part of parents, teachers, and even other students. These biases could prevent students from receiving the services they need to achieve their fullest potential (Bianco & Leech, 2010). The current study systematically replicated a study by Bianco and Leech (2010) and examined the influence of disability labels on teachers' decisions to refer students to gifted programming. Further, this study investigated whether there were any differences in teachers' responses based on the type of teaching certificate they held (i.e., gifted education, special education, general education). Three groups of in-service teachers (85 general, 59 special, and 43 gifted education teachers) from the Western region of Saudi Arabia participated in the study. A cross-sectional survey methodology was employed. Teachers were randomly assigned to one of three survey conditions that consisted of a vignette that described a student with both giftedness and high potential traits, differing only with respect to

one of three labeling conditions (no label, learning disability [LD], autism spectrum disorder [ASD]).

Multinomial logistic regression was used to assess the influence of teacher type and the labeling condition on the teachers' ratings. Responses to an open-ended question that asked teachers to provide a reason for their referral decisions were analyzed qualitatively. The quantitative analysis showed neither teacher type nor the presence or absence of a disability label had a significant influence on the overall ratings, which was in sharp contrast to Bianco and Leech's (2010) results. The interaction of the two variables was also nonsignificant. Most of the participants (94%) chose to agree or strongly agree with a referral. However, of the few nonreferrals, most were for students with ASD. Three themes emerged from the qualitative analysis of the teachers' rationales including (a) the student shows gifted traits, (b) the student's skills could be cultivated with support, and (c) the student does not fit the definition for giftedness.

Findings from this study provided insights into the issues of labeling students and the status of twice-exceptionality in Saudi Arabia. The results indicated limited, negative bias among different types of teachers with respect to students with disabilities. Also, the participants in this study showed a strong orientation toward supporting the growth and development of the student in all three vignette conditions. However, it remained clear that Saudi Arabia would still greatly benefit from establishing a clear policy on twice-exceptionality and providing training programs to educators with respect to defining, identifying, and educating students with giftedness and disabilities.

DEDICATION

To every 2E student, you are the heroes of this work, and this study was just for you in my desire to serve you better.

ACKNOWLEDGEMENTS

In the name of Allah, the Most Gracious, the Most Merciful for I am truly blessed. All thankful and grateful to the Almighty God for all of his graces and my success to achieve all my goals in life.

There are many people that I wish to acknowledge as having helped to make my dream come true, and I cannot thank them enough for their love, help, support, and patience. First and foremost, I would like to express my love, gratitude, and appreciation to my loving mother, Aisha, and darling father, Abdulrahman, for their unconditional love and support. You have supported me all of my life and especially through my educational journey, and I apologize for any pain or loneliness that you felt while you waited for my return for the past 10 years during my studies here in the United States. Thank you for surrounding me with your prayers and for believing in me and my abilities to achieve this goal. Without your encouragement growing up, I would never had gotten this far. My love and appreciation also go to my loving brothers and sisters and my lovely nieces and nephews for being my support system while I was stressed and for constantly cheering me on.

Words cannot express my love and gratefulness for my lovely daughter, Lobna, my beloved son, Ahmed, and my husband, Ghassan. You have all encouraged me, pushed me, comforted me, and stayed with me through it all. Every time that I lost hope, you gave my default as a mother and a wife in everyday life when I struggled. I hope this

work has made you proud of me the same way that I am always proud of you. Thank you for your unyielding support and commitment to help me to reach this point.

I want to acknowledge and express my unlimited gratitude to my wonderful advisor Dr. Jennifer Ritchotte for her time, effort, and patience with me in becoming a good researcher. I cannot thank you enough for your continuous support and supervision to achieve my goal and for your step-by-step guidance with this project. I greatly appreciate the time that you have spent with me in weekly visits, and your valuable constructive criticism and feedback were fundamental to this study. Without your involvement, knowledge, and expertise, it would have been nearly impossible to obtain this degree.

I would also like to express my appreciation and gratitude to my committee members for agreeing to be part of this project. Many thanks to them for the time that they allocated for this project and for their comments and support. Special thanks for Dr. Amy Graefe who gave me a chance to work with her as graduate assistant and provided me with positive comments that helped me to believe in myself. A special thanks also for Dr. Hasan Zaghlawan for his assistance with translation and validation of the research tool.

All of my thanks to all of the faculty members in the Special Education Department at UNC who taught me during my studies in the master's and doctoral program. Special thanks to Dr. Stuart Omdal and Dr. George Betts who believed in me from my very first day at UNC, which led me to achieve one of my biggest dreams. I really miss them, and their spiritual support will guide me throughout my career journey.

Thanks to all of the people who provided me with help in the statistics lab, and unlimited thanks to my mentor, Dr. Deborah Parker. I am grateful for the time and effort that she contributed to helping and the support she provided with her wise feedback until I finalized this project. I also extend many thanks to all of the people who helped me in Saudi Arabia at Jeddah University, in the Ministry of Education, and in the Departments of Education for facilitating the completion of this work.

Special thanks and gratitude to all my friends in the United States, who were very supportive and helped by pulling me out of feelings of depression or hopelessness during difficult times and sympathizing with me whenever I was homesick. And finally, thanks to everyone who extended a supportive hand in passing through this stage of my life journey.

TABLE OF CONTENTS

CHAPTER I. INTRODUCTION.....	1
Bias in Teacher Referrals to Special Programming.....	3
Influence of Teacher Type on Gifted Programming Referrals.....	4
The Twice Exceptionality Issue in Saudi Arabia.....	7
Statement of the Problem.....	9
Purpose of the Study.....	11
Significance of the Study.....	11
Research Questions and Hypotheses.....	13
Brief Overview of the Methodology.....	14
Delimitations.....	15
Definitions of Key Terms.....	16
CHAPTER II. REVIEW OF THE LITERATURE.....	18
Giftedness.....	18
Theories of Giftedness.....	21
Gifted Education Internationally.....	26
Disabilities.....	32
Twice Exceptionality.....	38
The Labeling Issue.....	50
The Educational System in Saudi Arabia.....	64
Summary.....	73
CHAPTER III. METHODOLOGY.....	76
Purpose of the Study.....	76
Research Questions and Hypotheses.....	76
Setting.....	78
Participants.....	84
Demographic Information.....	85
Measurement.....	88
Research Design.....	90
Correspondence and Data Collection Procedures.....	91
Data Analysis Plan.....	94

CHAPTER IV. RESULTS.....	97
Descriptive Statistics.....	97
Data Preparation and Entry for the Multinomial Logistic Regression	100
Hypothesis Testing and Interpretation	105
Summary	123
CHAPTER V. DISCUSSION.....	126
Influence of Labels on Teachers’ Perceptions of Students.....	128
Cultural Influence and Teachers’ Gifted Programming Referrals.....	130
Importance of the Study and Implications for Practice	133
Limitations of the Study.....	136
Suggestions for Future Research	137
Summary and Conclusions	138
REFERENCES	140
APPENDIX A. THE SURVEY	161
APPENDIX B. SECTION 2: RATINGS AND REASONS QUESTIONS.....	166
APPENDIX C. SECTION 3: DEMOGRAPHIC QUESTIONS.....	168
APPENDIX D. EMAIL COMMUNICATION WITH DR. BIANCO.....	171
APPENDIX E. INSTITUTIONAL REVIEW BOARD APPROVAL	173
APPENDIX F. INITIAL EMAIL COMMUNICATION WITH THE MINISTRY OF EDUCATION.....	175
APPENDIX G. TO THE GENERAL DIRECTOR OF THE CENTER OF THE EDUCATION POLICIES RESEARCH	177
APPENDIX H. EMAILS WITH THE MINISTRY OF EDUCATION.....	179
APPENDIX I. RECRUITING SAMPLES REQUESTED BY MINISTRY OF EDUCATION.....	181
APPENDIX J. LETTER OF APPROVAL FROM MINISTRY OF EDUCATION	184
APPENDIX K. APPROVAL LETTER FROM DEPARTMENT OF EDUCATION	187

APPENDIX L. INTRODUCTION LETTER FROM DEPARTMENT OF EDUCATION	190
APPENDIX M. SURVEY DISTRIBUTION TEXT	193
APPENDIX N. CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH.....	195
APPENDIX O. RAW DATA FOR REFERRAL REASONS	198

LIST OF TABLES

1.	Strengths and Challenges of Twice-Exceptional Students	45
2.	Number of Schools and Elementary-School Teachers in the Western Region of Saudi Arabia.....	84
3.	Participants' Demographic Characteristics.....	87
4.	Teachers' Special and Gifted Education Backgrounds.....	88
5.	Distribution of Teachers by Certification Types Across Label Conditions.....	98
6.	Referral Ratings by Label Condition and Teacher Type	99
7.	Gifted Program Ratings by Teacher Type	100
8.	Gifted Program Ratings by Label Condition	101
9.	Collinearity Diagnostics.....	103
10.	Goodness-of-Fit Tests.....	104
11.	Multinomial Logistic Regression Model Fit.....	105
12.	Likelihood Ratio Test for Teacher Type and Label Condition.....	106
13.	Parameter, Odds Ratio, and Significance Values by Label Condition	109
14.	Multinomial Regression Interaction Results.....	110
15.	Distribution of Teacher Types by Label Conditions for Fourth Research Question and Response Rates	111
16.	Theme 1: The Student Showed Gifted Traits	114
17.	Theme 2: Student Needs Development.....	115
18.	Theme 3: Student Does Not Fit Definition for Giftedness	121
19.	Categorized Referral Decision Reasons for the Student.....	123

LIST OF FIGURES

1.	Map of Saudi Arabia.....	83
2.	Frequency of responses for each rating category for gifted programs by teacher type and labeling condition	110

CHAPTER I

INTRODUCTION

For decades, there has been significant interest among educational researchers and professionals in the field of gifted education concerning twice exceptionality. Twice-exceptional (2E) individuals are those who demonstrate gifts or talents and at least one recognized disability. Despite the efforts of teachers and researchers to address this issue, 2E students are often misunderstood; understanding how to address their emotional, social, and intellectual needs is a challenge for both parents and educators (Amend & Peters, 2015; Assouline & Whiteman, 2011). Although 2E students are often eager to learn, the normal classroom environment is too often not set up to meet their educational needs (Baum, Schader, & Hébert, 2014). Those who advocate for the needs of 2E students emphasize the use of individualized teaching methods and learning environments to address these students' abilities and disabilities more effectively (Ruban & Reis, 2005).

Trail (2011) proposed that 2–7% of the special education population could be twice-exceptional. Lovett and Sparks (2013) reported similar findings in their study, which found 2E students represented around 5% of the special education student population that participated in their study. Although these percentages were helpful, Lovett and Sparks concluded the data provided by research on this issue was not robust enough to provide definitive data on prevalence. Despite reviewing 940 studies written on the topics of giftedness and specific learning disability (SLD), Lovett and Sparks

found fewer than 50 had any empirical data. Additionally, the criteria for identifying 2E students were inconsistent from study to study. For example, although a student might have been identified as 2E in one a study, they might not have been identified as such given the criteria used in a different study. Nonetheless, the 2E student population was likely small according to Trail, partly because identifying 2E students is complex. However, Jones (2014) argued that up to 20% of the special education student population could be identified as twice-exceptional.

If teachers are unable to determine whether characteristics of a disability and/or giftedness are present, they will be unable to make a proper referral for specialized programming or to address these students' learning needs appropriately (Baum, Cooper, & Neu, 2001; Montgomery, 2007). Therefore, to help educators identify the wide variety of characteristics that accompany twice exceptionality and make appropriate programming referrals, it is vital that teachers receive training in identifying 2E students and meeting their needs both in the classroom and via special services and programs. It is also important that ongoing research be conducted to determine how 2E students learn, what kinds of strategies do or do not work in a classroom setting, and what interventions for 2E students are necessary (Baum et al., 2001; Jones, 2014; Ruban & Reis, 2005).

Identifying 2E students is complex because gifts might overshadow disabilities and vice versa—this is often referred to as a masking effect (Baldwin, Omdal, & Pereles, 2015; Brody & Mills, 1997). Twice-exceptional students are often overlooked for services they need and these students are disproportionately represented in gifted programs because they are not identified as having gifts or talents. Teachers often assess a 2E student in terms of their disability rather than their giftedness. Teacher nominations

are one of the most common methods schools use to begin the identification process for gifted or talented students (Al Garni, 2012). However, recent research has indicated teacher nominations are one of the least reliable methods for identifying gifted students (Bianco & Leech, 2010; Davis, Rimm, & Siegle, 2014; Pfeiffer & Blei, 2008; Ritchotte & Zaghawan, 2019).

Bias in Teacher Referrals to Special Programming

Empirical studies have demonstrated that teachers' expectations regarding students' physical appearance, achievement measures, and classroom behavior often drive biased performance expectations, referral decisions, and even behavior toward students. The effects of labeling on teacher referral decisions have been studied frequently among gifted students and students with various learning and emotional-behavioral disabilities (EBDs). These studies collectively showed that labeling students as being gifted or as having a disability led to biased referral decisions for both gifted and special needs services (Babad, Inbar, & Rosenthal, 1982; Bianco & Leech, 2010; Davis et al., 2014; Gates, 2010; Hoffman, 2014; Lalvani, 2015; Moon, 2009; Moore, Filippou, Perrett, 2011; Nisbett & Wilson, 1977; Rosenthal & Jacobson, 1968; Shifrer, 2013). For example, research consistently demonstrated that teachers are less likely to refer students with disability labels to gifted programs (Bianco, 2005; Bianco & Leech, 2010). Also, children with gifts and talents are often misunderstood and receive inadequate support in general education classrooms. Gifted students might be overlooked for gifted programming because teachers or parents mistake gifted characteristics for behavioral problems (Al-Amiri, 2011; Foley-Nicpon, Allmon, Sieck, & Stinson, 2011; Mullet & Rinn, 2015; Piechowski & Colangelo, 1984). In addition to biases related to stereotypes

and expectations (Nisbett & Wilson, 1977; Rosenthal & Jacobson, 1968), studies have shown that a teacher's area of practice (general, gifted, or special education) potentially influenced their behavior and referral decisions related to special programming (Babad et al., 1982; Bianco, 2005; Bianco & Leech, 2010; Hoffman, 2014; Sexton, 2016).

Influence of Teacher Type on Gifted Programming Referrals

It is important to acknowledge the historical separation of gifted and special education in considering reasons for biases related to teacher certification type. Special education teachers are trained to educate students who have been identified with one or more disabilities and are not well-equipped to work with students who have characteristics of giftedness. Special education teachers are not specifically trained to concentrate on potential giftedness. Similarly, gifted education teachers are trained to work predominantly with students who have identified gifted characteristics and have a minimal amount or sometimes no training on working with students who have disabilities (Jones, 2014).

Jones (2014) contended that since general education teachers taught all students, they needed to have a fundamental understanding of both gifted and special education. The general education teacher likely kept mental (or physical) notes on a student's preferred learning style and how he/she tended to behave in classroom situations. The regular education teacher is often consulted when a student is referred to gifted or special education programming. Unfortunately, it has been shown that consistent with overall results of other research, when a student is labeled with one or more disabilities, general education teachers tend to hold a bias against the student with respect to agreeing with a decision to refer the student to gifted programming (Jones, 2014).

Studies investigating how teacher type (general, special, and gifted education) interacts with labeling bias in referral decisions have yielded inconsistent results. Bianco and Leech (2010) reported that general education teachers were more likely to refer a student with a disability to gifted programming than were special education teachers and special education teachers were least likely to refer students to gifted programs regardless of disability labels or a lack thereof. Further, overall results of studies relating the labeling issue with teacher certification type have indicated gifted education teachers tended to only notice the “gifted” aspects of a student while neglecting to give attention to their disabilities (Bianco & Leech, 2010). Special education teachers were reported to have similar issues; however, they noticed students’ disability labels and overlooked their giftedness (Hoffman, 2014). Some studies found no significant differences in referrals by teacher certification type (Alkhunaini, 2013; Nichols, 2015).

Despite inconsistencies, reasonable evidence has shown how disability labels influence referrals to gifted programs among different teacher types (Bianco & Leech, 2010; Hoffman, 2014; Jones, 2014; Nichols, 2015; Sexton, 2016). Therefore, to mitigate and reduce inherent biases that influence their referral decisions, it is imperative to train all teachers to identify students’ potential special needs (Jones, 2014). This is especially important with respect to identifying and providing education to 2E students.

There is a need for additional research that specifically addresses how teacher type and labeling affect referrals of 2E students to needed services because training likely needs to be tailored to teacher type (Jones, 2014). To better understand their 2E students, preservice teachers should receive training to obtain basic knowledge about 2E students and how to work with them, and in-service teachers should receive continuing education

about this issue. General education teachers are ideally in the best position to notice both a student's giftedness and disabilities (if either is present). However, they often have their own biases that could make them notice characteristics of one exceptionality over another. Even general education teachers have been shown to notice a disability more so than a student's giftedness and this bias often influences their referral decisions (Webster, 2015).

In addition to establishing some consistent trends that effectively guide teacher training efforts, studies that focus on how teachers in different areas identify and make referral decisions about 2E students have been underrepresented in the research. Such studies would be important in establishing consistent ways to identify 2E students and provide needed training to teachers. As learning environments become more complex, especially with the inclusion of students with diverse needs, labeling bias has become an increasingly important issue because it affects a unique and more complex segment of the student population. Further, international studies are needed to determine the effects of labeling and biases as they relate to K–12 educational settings. Such studies would guide efforts to address this potential issue in different cultural contexts.

Educational developments in Saudi Arabia make this country a feasible location to conduct studies about labeling bias with different types of teachers (i.e., general education, gifted education, and special education). Unfortunately, this area is greatly under-researched in Saudi Arabia. Therefore, this research study replicated a labeling bias study conducted in the United States (Bianco & Leech, 2010) on Saudi Arabian teachers to determine how labeling bias related to teacher type and referrals to gifted programming.

The Twice Exceptionality Issue in Saudi Arabia

Traditionally in Saudi Arabia, there has been a stigma against people with disabilities. More recently, Saudi Arabians are developing the view that disability is the “result of the interaction between the individual’s characteristics and the social and physical barriers that prevent the expression of the full potential of the individual” (Alrubaian, 2014, p. 7). Culturally, disability is now being viewed in more positive terms. This development has led to the inclusion of students with mild disabilities in general education classrooms, but general education teachers are not trained in teaching students with disabilities. Part of the responsibility of general education teachers is to identify students who need special education services. Therefore, the Ministry of Education has assigned certified special education teachers to collaborate with general education teachers at the beginning of each school year to visit and provide information about different disabilities (Alrubaian, 2014).

Al-Ahmadi (2009) conducted a study looking at the attitudes and perspectives of teachers when students with learning disabilities were integrated with students in public school settings (this was the result of legislation passed in Saudi Arabia in 2005). Many cultural influences have affected teachers’ attitudes toward having students with disabilities included in their classrooms. Both general education and special education teachers were concerned about whether or not their educational training would be enough to be able to manage this mixture of students. Further, special education teachers were also worried about whether general education teachers and Saudi Arabian public schools would be able to handle this type of integration.

There were also differences in teachers' perspectives depending on whether the teacher was a special education teacher or a general education teacher. Among general education teachers, attitudes and perceptions were significantly dependent on factors such as gender or education. For example, among general education teachers, male teachers tended to be more positive about the integration process than were female teachers. Researchers attributed the differences between special education teachers and general education teachers to the possibility that special education teachers had a more 'realistic point of view' (Al-Ahmadi, 2009).

Al-Amiri (2011) mentioned that one large concern about teacher bias in referrals to gifted programming was manifestations of advanced development in 2E students could be misunderstood and believed to be a psychological disorder rather than giftedness. Disabilities like attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorders (ASD), and specific learning disability (SLD) are commonly diagnosed in gifted children in Saudi Arabia. Assigning one of these disabilities to a child could present challenges to teachers, 2E students' parents, and 2E students' counselors. Some argued that these disability diagnoses were actually byproducts of 2E students' development potential and not psychological disorders (Al-Amiri, 2011).

Overall, Saudi Arabia faces the same challenges as the United States did with respect to serving the special needs of an increasingly diverse student population. Although identifying exceptionalities is important, whether related to gifts or disabilities, labeling too often leads to biases.

Statement of the Problem

Current research in special education clearly indicates there are issues with how teachers recognize, identify, and refer students with special needs to appropriate intellectual, social, or emotional supports. Twice-exceptional students are especially vulnerable to identification and referral errors because masking issues, general misunderstandings, and an overall lack of teacher preparation in working with 2E students often prevent these students from receiving needed services.

Current teaching systems cater to either a student's giftedness or disability but not a combination of the two (Jones, 2014; Montgomery, 2007). However, recent research has strongly suggested that teachers in both the United States and Saudi Arabia need and want training that helps them identify, refer, and serve 2E students appropriately and effectively (Alsamiri, 2016, 2019; Bianco & Leech, 2010; Hoffman, 2014). Effective teacher training is a critical issue underlying the success of efforts to educate 2E students because these students are often overlooked for services they need. The reason for this is oftentimes a disability can mask giftedness in 2E students and vice versa. Gifted students are assumed to need nothing so a slight learning disability or emotional need remains unaddressed. Also, students with disabilities are underrepresented among teachers' referrals to gifted programming.

Difficulties with identifying and referring 2E students to needed programs are frequently related to labeling bias, which is a consistent problem in special education. Although labels provide an effective means of categorizing students and referring them to needed programming, labels associated with giftedness or disabilities have consistently produced changes in the expectations and behaviors of students, parents, teachers,

administrators, and peers who interact with the students who have been labeled. Gifted students might be shunned or celebrated, depending on the people involved. Students with disabilities are often assumed to lack intelligence and motivation. Empirical research has consistently demonstrated that labels lead to biased teacher referrals to both gifted and special needs programming (Babad et al., 1982; Bianco & Leech, 2010; Davis et al., 2014; Gates, 2010; Hoffman, 2014; Lalvani, 2015; Moon, 2009; Moore et al., 2011; Nisbett & Wilson, 1977; Rosenthal & Jacobson, 1968; Shifrer, 2013).

Labeling bias is further complicated by numerous confounding variables that potentially affect teacher referrals including teacher background, experience, and certain demographic characteristics (Hoffman, 2014; Webster, 2015). Several studies have demonstrated that teachers' credentials, or area of expertise, could influence their referral decisions. For example, Hoffman (2014) found special education teachers were most likely to refer a gifted student to special education programming and gifted education teachers were most likely to refer a student to gifted programming whether or not they had a disability label. Another study showed special education teachers were least likely to refer a student to gifted programming regardless of labels (Bianco & Leech, 2010). Similar biases appeared among teachers who specialized in gifted education (Jones, 2014). Clearly, this problem was further complicated when 2E students were involved.

In the interest of providing 2E students with the education they deserve, other researchers have recommended providing teachers with more training and professional development directed at increasing their awareness of twice-exceptionality in order to help them identify 2E students and ensure 2E students are referred to appropriate programming. Additionally, further consideration of how teachers' backgrounds

influence referral decisions is needed because results in this area are currently inconsistent (Alkhunaini, 2013; Allday, Duhon, Blackburn-Ellis, & Van Dycke, 2011; Bianco, 2005; Bianco-Cornish, 2003; Bianco & Leech, 2010; Hoffman, 2014; Jones, 2014; Nichols, 2015; Sexton, 2016; Webster, 2015). This study was intended to help carry out these recommendations by exploring the connections between teacher type and 2E student referrals to gifted programming and based on what was found, indicate what training might be necessary for different teachers (Bianco & Leech, 2010; Jones, 2014; Nichols, 2015; Sexton, 2016).

Purpose of the Study

The purpose of this study was to investigate the effects of labeling on general, gifted, and special education teachers' decisions to refer students to gifted programs in Saudi Arabia. This study systematically replicated a U.S. study that examined the relationship between teacher type (general, gifted, or special education teachers), student labels (disability or lack thereof), and teachers' referrals of a hypothetical student to gifted programming (Bianco & Leech 2010) with Saudi Arabian teachers. This systematic replication was intended to determine whether labeling biases exist in a Western region of Saudi Arabia and whether referral decisions for a hypothetical twice-exceptional student were influenced by teachers' area of specialization (i.e., gifted education, special education, general education) and the student's disability label (i.e., learning disability, autism spectrum disorder)..

Significance of the Study

Although educational research has demonstrated that labeling students as gifted or as having a disability created bias in teachers' referrals to gifted or special needs

programming, there are still substantial gaps in our understanding of variables that interact with labels to create referral bias and how to help teachers avoid such biases. Specifically, studies concerning the influence of teachers' credentials on referrals to gifted or special education programs have yielded inconsistent results. Furthermore, studies that focused on 2E students were limited. This was especially true of research studies in Saudi Arabia.

This study contributed to the body of research concerning the interaction between teacher type and student labels as it related to referral decisions for 2E students. The results of this researcher extended the literature regarding labeling bias and the effects of teacher type on referral decisions for twice-exceptional students. Furthermore, this study contributed information regarding the potential impact of labeling bias from a geocultural location other than the United States. In this respect, this study provided unique insight into how other cultures view 2E as well as how labeling bias operates in a different culture.

Twice-exceptional students present difficulties to teachers who have not received appropriate training or are not yet familiar with the co-occurrence of giftedness and learning (or other) disabilities (e.g., LD, ADHD, ASD). Investigating the dynamics involved with labeling bias would help stakeholders design training to help teachers make accurate and objective referral decisions. It is crucial for teachers to have proper preparation and training in identifying 2E students and referring them to the programming that will serve them best.

Research Questions and Hypotheses

This cross-sectional survey study investigated the relationship among teacher type, student disability labels, and teachers' decisions to refer a hypothetical student to gifted programming. Saudi Arabian teachers read the same vignette used by Bianco and Leech (2010), which described a student with gifted characteristics who also showed some potential special needs. The only difference was whether the hypothetical student was described as having a learning disability, autism spectrum disorder, or was not labeled with any exceptionality. General, gifted, and special education teachers were randomly assigned to receive one of the three vignettes. The teachers then indicated the degree to which they would agree with referring the student to gifted programming. The following research questions were adapted from Bianco and Leech (2010) and guided this study. Alternative hypotheses were also developed:

- Q1 Do referral ratings for gifted programs differ among general education teachers, gifted education teachers, and special education teachers?
- H₁ Teacher type influences the referral ratings for gifted programs. There will be a significant difference in referral ratings among teachers (i.e., general education teachers, special education teachers, and gifted education teachers).
- H₀₁ Teacher type does not influence the referral ratings for gifted programs. There will be no significant difference in referral ratings among teachers (i.e., general education teachers, special education teachers, and gifted education teachers).
- Q2 Do referral ratings for gifted programs differ among teachers who believe that the student has a specific learning disability label, an autism spectrum disorder label, or no exceptional condition?
- H₂ Students' disability (or lack of) labels influence the referral ratings for gifted programs. There will be a significant difference in referral ratings among teachers who believe the student has an autism spectrum disorder label, a specific learning disability label, or no exceptional condition.

- H₀₂ Students' disability (or lack of) labels do not influence the referral ratings for gifted programs. There will be no significant difference in referral ratings among teachers who believe the student has an autism spectrum disorder label, a specific learning disability label, or no exceptional condition.
- Q3 Is there an interaction between labeling condition and teacher certification type?
- H₃ There is an interaction between students' disability (or lack of) labels and teacher types that influences the referral ratings for gifted programs.
- H₀₃ There was no interaction between students' disability (or lack of) labels and teacher types that influences the referral ratings for gifted programs.
- Q4 Why do general, gifted, and special education teachers choose to refer or not refer students with and without disability labels to gifted programming?

Brief Overview of the Methodology

This study examined the effects of student labels (learning disability, autism spectrum disorder, or no exceptionality label) and teacher type (general, gifted, or special education teaching) on Saudi Arabian teachers' decisions to refer a student to gifted programming. Specifically, the study took place in a Western region of Saudi Arabia and the participants consisted of elementary-school teachers from grades one to six. This study used a mixed-methods approach to address the research questions. Quantitative, cross-sectional survey data were collected to show the connections between teacher type and referral decisions and qualitative data, which were based on an open-ended question in the survey, provided a deeper exploration of the reasons behind the teachers' referral decisions.

Participants in this study were given an electronic survey in order to recruit a larger number of participants (this was especially important considering the study took place in Saudi Arabia where bureaucracy of procedures could take a long of time if

distributed with a hard copy). The initial target sample size was 60 participants for each teacher type (i.e., general, special, and gifted education) for a total of 180 participants. The survey included (a) a consent form, (b) a vignette about a student with gifted characteristics (teachers were randomly assigned to receive a link to one of the three vignette conditions), (c) an open-ended question about their decision to refer or to not refer the student to gifted programming, and (d) a demographic data sheet. The data were analyzed by using SPSS software. A multinomial logistic regression (MLR) analysis was performed to answer research questions 1-3. Qualitative thematic analysis was used to answer research question 4.

Delimitations

This study investigated the effect of teacher type and student labels on teacher referrals of students to a gifted program. The study's scope was limited to elementary school teachers who had specific credentials: general education, gifted education, and special education. The study did not include others who might be involved in referral processes and decisions such as parents and school psychologists. Also, the participants consisted only of public-school teachers who had already been hired by the Ministry of Education. Therefore, the results might not be generalized to private school or other service settings.

The study was conducted in western Saudi Arabia; thus, the results could not be assumed to generalize to other major regions within Saudi Arabia without additional research because there are substantial variations in cultural contexts from city to city and region to region. Similarly, the generalizability of the research results to other countries in the Middle East is limited.

Further, the researcher made every effort to systematically replicate Bianco and Leech's (2010) study; however, differences in cultural contexts and perspectives regarding individuals with disabilities might have led to differences in how the research material was perceived by the participants. Further, all of the materials were translated from English to Arabic and back translated. The translation process might have limited the conclusions that could be drawn and the degree to which the current results could be generalized to other populations.

Definitions of Key Terms

Autism spectrum disorders. Autism spectrum disorder (ASD) is defined by the

Individuals with Disabilities Education Act (IDEA, 2004) as “a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child's educational performance” (Part B).

Gifted students. The term gifted student (GS) in Saudi Arabia refers to students who possess unique skills, abilities, or distinguished performance from their peers in one or more of the areas as evaluated by specialists (especially in the areas of mental superiority, innovative thinking, educational attainment, and special ability and skills) and are in need of special educational care unavailable in the ordinary school curriculum (King Abdul-Aziz and his Companions Foundation for Giftedness and Creativity, 2017).

Labeling. For the purposes of this study, labeling is the practice of assigning labels that describe characteristics of students, indicating giftedness or special needs. Such labels include gifted, talented, LD, SLD, ASD, EBD, oppositional defiant

disorder, and so on. Schools use labels to provide special services to students with learning needs that differ from those of the general population.

Referrals. The decision a teacher makes about whether or not to assign a student to gifted or special education programming. Students might also be referred to outside support for emotional or physiological needs.

Specific learning disability (SLD). The term learning disability is defined as a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations (IDEA, 2004).

Teacher type. Refers to whether the teacher holds a certification or has been educated to teach in public schools in general education, gifted education, or special education.

Twice-exceptional student. A twice-exceptional student (2E) is one who exhibits characteristics of both giftedness and having a learning disability (IDEA, 2004). These students are difficult to identify largely because of the masking issue—where their strengths mask their weaknesses and vice versa (Reis, Baum, & Burke, 2014).

CHAPTER II

REVIEW OF THE LITERATURE

This chapter provides a review of the current literature related to twice exceptionality in educational settings. More specifically, the following topics are reviewed: (a) history of giftedness and gifted education, (b) special education for students with disabilities, (c) twice exceptionality and related issues including identification and challenges for 2E students and teachers, (d) labeling theory and issues related to labeling, (e) the educational system in Saudi Arabia, and (f) the status of twice exceptionality in Saudi Arabia.

Giftedness

History of Giftedness

To fully understand the complex nature of twice exceptionality, it is important to first define giftedness and demonstrate how researchers' understanding of this complex construct has evolved over time. The concept of intelligence is not easily defined. Intelligence is connected to giftedness; however, similar to inconsistent definitions of intelligence, there is no universally agreed upon definition of giftedness (Davis et al., 2014; Gallagher, 1994; Reis & Renzulli, 2010). For years, giftedness meant having an intelligent quotient (IQ) as measured by a standardized test of at least two standard deviations above the mean. However, more contemporary definitions stretch beyond IQ and might include factors like raising philosophical questions, showing interest in mastering new material, and requiring little instruction to successfully complete academic

tasks (McCoach, Kehle, Bray, & Siegle, 2001). According to Renzulli (2005), there are two major categories of giftedness. One focuses on the ‘ability’ of an individual (i.e., schoolhouse giftedness) while the other focuses on ‘productivity’ (i.e., creative-productive giftedness). Schoolhouse giftedness is most easily measured by IQ and cognitive ability tests while creative-productive giftedness goes beyond ability and requires students to use their ability in a way that is meaningful, creative, and challenging.

In the 1970s and 80s, definitions and theories of gifted and talented students began to recognize that giftedness is not just ability as measured by IQ testing. For example, in 1972, the advisory panel to the U.S. Commissioner of Education (cited in (Marland, 1972) defined gifted and talented children as follows:

Gifted and talented children are those identified by professionally qualified persons who, by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programs or services beyond those normally provided by the regular school program in order to realize their contribution to self and society. Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination: general intellectual ability, specific academic aptitude, creative or productive thinking, leadership ability, visual and performing arts, and psychomotor ability. (p. 2)

The Marland (1972) definition was revised in 1978 to include K-12 students and psychomotor ability was eliminated from the areas considered in the definition.

Psychomotor ability was dropped from the list because many policy makers thought it

referred to athletic ability, which was already well-supported in U.S. society (Gallagher, 1994). The definition still emphasized demonstrated or potential abilities and the notion that gifted students required services beyond those commonly offered at most schools (Gubbins, 2002). According to Gubbins (2002), the Javits Gifted and Talented Students Education Act of 1988 and the federal Elementary and Secondary Education Act modified the Marland definition, shifting focus from viewing gifted as an innate trait to viewing giftedness in broader terms that included performance outcomes.

The definition of giftedness became more inclusive as the general scientific understanding of exceptionality progressed. In 2010, the National Association for Gifted Children (NAGC) presented the following view of giftedness rather than defining it in static terms:

Gifted individuals are those who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or achievement in top 10% or rarer) in one or more domains. Domains include any structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensorimotor skills (e.g., painting, dance, sports). (p. 1)

In addition to a more inclusive view that restated the concept of potential, the NAGC emphasized that the development of various gifts could be a lifelong process. Some abilities and talents are clearly apparent in young children who demonstrate exceptional performance on measures of ability or a rapid rate of learning compared to peers. Giftedness might also manifest as actual achievement in a specific domain. Achievement and high levels of motivation in a domain are viewed as the main

characteristics of giftedness as individuals mature. Furthermore, numerous factors could either help or hinder the development and expression of abilities or talents (NAGC, 2010).

The perspective of NAGC (2010) acknowledged the diversity of profiles existing among gifted and talented students and it reflected the potential difficulty of establishing standardized operational definitions for giftedness, much less twice exceptionality. In the case of 2E students, various factors could inhibit or mask giftedness so 2E students might be overlooked for gifted programming (Graefe, 2017). Developments in theories of giftedness have reflected the ongoing shift toward viewing giftedness as a diverse range of special abilities instead of a single category of abilities or variables. It is important to note that conceptions have evolved to demonstrate the complexity of giftedness. This is important for 2E students because this evolution supports the notion that if giftedness alone is a complex construct, twice exceptionality, which represents both giftedness and disability, might be even more difficult to fully understand.

Theories of Giftedness

Beginning in the 1970s, prominent thinkers in gifted education and related fields began proposing theoretical models to explain giftedness. Recent theories of giftedness reflect a more complex perspective than those based solely on IQ (Davis et al., 2014; McCoach et al., 2001). Understanding these models is important to understanding the phenomenon of twice exceptionality so four of the most influential of these models were examined: Renzulli's (1998) three-ring conception of giftedness, Gardner's (1983) multiple intelligences, Sternberg's (1984a) theory of successful intelligence, and Gagné's (2000) differentiation model of giftedness and talent.

Three-Ring Conception of Giftedness

In 1998, Renzulli presented a new theory of giftedness that viewed it in terms of three interacting trait clusters that were associated with creative, productive accomplishment: above average ability, task commitment, and high levels of creativity (Renzulli, 2005). These traits were considered to be dynamic and unlikely to be equal across situations. Individuals were thought to apply these traits alone or in interaction in a variety of performance areas. The model was based on individuals thought to be successful performers in different fields of achievement. Renzulli (2005) also distinguished between general and specific performance areas. Some general performance areas were mathematics, music, languages, or art. Examples of more specific performance areas were film making, electronics, sculpture, physics, and so on. Renzulli's work (1990, 1998) reflected the ongoing shift from viewing giftedness as a static trait (i.e., gifted students) to viewing giftedness as a behavior.

Renzulli's (2005) theory opened the door to identifying gifted students who did not fit a specific cognitive profile. For example, the three-ring conception allowed children with highly developed special interests or those who were intrinsically motivated to be identified as potentially gifted in one or more areas. Renzulli emphasized the importance of applying gifted behaviors to potentially valuable areas of human performance, stating that a theory is useful only to the degree that it provides direction to practitioners (Renzulli, 2005).

Renzulli's (1990) dynamic view of abilities showed potential for identifying strengths of individuals who did not fit preconceived ability profiles, i.e., 2E students. Furthermore, Renzulli emphasized the importance of relating information obtained from

the identification process to providing a continuum of services aligned with students' learning needs. Renzulli paved the way for students with more diverse learning profiles to have access to enriched education, thus opening the door to many 2E students who might not have been referred to gifted services through traditional perspectives.

Multiple Intelligences Model

Soon after Renzulli's work, Gardner (1983) sought to broaden the concept of intelligence beyond that of a single trait. Gardner's theory of multiple intelligences posited seven major intelligences and any person might possess one or more of these intelligences: linguistic, logical-mathematical, bodily-kinesthetic, musical, personal (interpersonal and intrapersonal), and spatial. Later, naturalistic intelligence was added to the list to acknowledge extensive interest and understanding of the living world. Gardner (1983, 1999) defined intelligence as the ability to solve problems or create products in one or more cultural settings. One of the most valuable contributions of this theory was it supported strength-based learning and development. This theory also pointed to the importance of factors that interact in determining actual behavior and performance.

Gardner's (1983) concept of multiple intelligences has led to more integrated theories of giftedness that examine this phenomenon in terms of multiple variables that interact. As indicated in the theoretical framework presented in this paper, theories that viewed intelligence in terms of multiple interacting variables could accommodate the concept of twice exceptionality more successfully than static views. For example, with Gardner's theory, it is easier to understand how someone with unusual interpersonal skills might compensate for some difficulties in other areas of intelligence. It is also

logical, based on this theory, to see how significant difficulty in any of these areas could mask giftedness in the other.

Theory of Successful Intelligence

Sternberg's (1985) triarchic model of successful intelligence also demonstrated progress toward more dynamic and comprehensive theories of intelligence that provided better support for the construct of twice exceptionality. This theory considered intelligence in terms of behavior in the real world instead of strictly performance on cognitive measures. The ongoing development of Sternberg's triarchic theory has led to the simpler but more comprehensive theory of successful intelligence, which is based on the interaction of three primary aspects of intelligent behavior: analytical, practical, and creative. Sternberg (2000) described successful intelligence as

the ability to achieve success in life, given one's personal standards, within one's sociocultural context. One's ability to achieve success depends on one's capitalizing on one's strengths and correcting or compensating for one's weaknesses through a balance of analytical, creative, and practical abilities in order to adapt to, shape, and select environments. Gifted people do these things at a higher level than do others. (p. 4)

Consistent with views of intelligence that went beyond memory and analytical abilities, the works of Gardner (1983), Renzulli (1998), and Sternberg (1984a, 1984b 1985, 2000) explained how many people who did not demonstrate an unusually high IQ were still quite successful in life. These individuals were creative, bright, and adept with practical matters. This theory emphasized the importance of understanding intelligence

within environmental and cultural contexts and it focused on the adaptive abilities of the individual, which is critical for understanding and supporting 2E students.

Differentiated Model of Giftedness and Talent

Gagné (1985) conceptually differentiated between giftedness and talent in a model that also considered how various catalysts influenced the appearance and development of specific traits and behaviors. According to the differentiated model of giftedness and talent (DMGT), giftedness is considered an innate quality or aptitude that is spontaneously expressed as a superior ability (i.e., top 10% of peers). Talent is superior mastery in at least one field of human activity that places an individual within the upper 10% of age peers (Gagné, 1985). This theory defined four aptitude domains: intellectual, creative, socio-affective, and sensorimotor. Gifts are typically identified first while talents are developed over time. An expressed talent implies an innate gift but gifts might reside within a person without being expressed (e.g., underachievement). The DMGT accounts for an individual's interactions with the environment and potential intrapersonal factors that affect the expression of gifts and the development of talents. An individual's development could be helped or hindered by intrapersonal (i.e., physical abilities, self-esteem) and environmental (i.e., society, people, resources, or events) factors.

The theory also acknowledges that chance events (e.g., being born to a certain family) could play a role in observed giftedness and talent. These variables are called catalysts in the DMGT (Gagné, 1985, 2004). This theory considers contextual factors that potentially explain why 2E children might have gifts that cannot develop without

some assistance and why giftedness might be easily overlooked in different environments or circumstances.

Gifted Education Internationally

Cultural factors play an important role in gifted education. Educational programming for gifted students depends on how a country, state, or region defines giftedness, how giftedness is identified, what types of gifted programming options are in place, how gifted services are structured, and how much the local community is involved in its schools. The lack of a consistent international definition of “giftedness” has thus led to substantial variability in gifted education from country to country (Hassan & Jamaludin, 2009). With no universal guidelines for establishing gifted programming, most countries use a mixture of enrichment, acceleration, and ability grouping strategies in their gifted programming (Al-Makhalid, 2012).

Gifted Education in the United States

In the United States, the Marland (1972) report was the first time a federal definition of gifted was presented. In this definition, it was made clear that gifted programming should differ from regular school programs. Additionally, to qualify as gifted, students had to excel in one or more academic disciplines or ability domains.

Although there was broad agreement among experts on the Marland (1972) definition—“73% of school districts in the nation adopted the Marland definition for giftedness” (Lee, 2018, p. 12), it was still up to individual states to define for themselves what “gifted” meant, how to identify gifted students, and how to implement programming for those students (Lee, 2018). According to Lee (2018), the National Association for Gifted Children (NAGC) and the Council of State Directors of Programs for the Gifted

(CSDPG) reported that over 20 states addressed the following areas in their definitions of giftedness: (a) intellectually gifted, (b) academically gifted, (c) specific academic areas, (d) creatively gifted, and (e) performing/visual arts. Additionally, certain states also took into account that giftedness could be found in underrepresented groups such as students from low socioeconomic backgrounds, underachievers, students from different cultural and ethnic backgrounds, English language learners, and students with disabilities (Lee, 2018).

Even though many years have passed since the first official definition of giftedness was established, it would appear progress in helping gifted students actualize their potential has stagnated in the public school system in the United States (Graefe, 2017). Stanley and Baines (2002) blamed this, at least partially, on the inflexible budgets for education and unnecessary complexity in the legal system (Graefe, 2017). After all of the time that has passed, there is still no full agreement on one consistent definition all states use to define what it means to be gifted (Graefe, 2017; Stanley & Baines, 2002). Furthermore, funding for gifted programming varies greatly depending on the state. Some states do not even require gifted students be identified or served, let alone allocate part of their education budget to it; while other states require gifted education and provide costs to fund it (NAGC, 2015). Such inconsistencies throughout the United States implied, in essence, a limited belief in the value and necessity of providing gifted education in addition to regular school programming (Graefe, 2017).

Gifted Education in Asia

In China, gifted students are referred to as “supernormal” children. Research in gifted education was in high demand and the country conducted studies to identify

extraordinary students to help improve their education (Zhang & Shi, 2006). Specifically, this research examined thinking skills, cognition, creativity, and psychological measurement. From these studies, several enrichment programs for gifted students were established (Zhang & Shi, 2006). In Japan, gifted students are not recognized and schools value effort over natural giftedness (Stevenson, Lee, & Chen, 1994).

Gifted Education in Europe

In England, gifted students are called ‘able pupils’ (Paule, 2006). According to Paule (2006), there are two different approaches for identifying able pupils: the “Excellence in Cities” guidelines and The National Academy. “Excellence in Cities” required schools to choose the top 10% of their most able students, representing students of all diverse socioeconomic backgrounds, genders, and ethnicities and provide intensive domain-specific programming options. The National Academy included specific criteria for labeling able pupils and what ‘gifted and talented’ meant. The National Academy for Gifted and Talented Youth was created to provide most able pupils with needed help (Paule, 2006). In England, gifted programming is offered to these ‘able pupils’ in the form of (limited) grade skipping (the acceleration strategy), sharing classes with students older than themselves and whole groups (the ability group strategy), and in extracurricular activities combined with personal mentoring to help round out their knowledge (Mönks & Pflüger, 2005).

Further, Hungary created the 1993 Act of Education that assured all children received services for their gifted abilities (Herskovits, 2006). Under this law, Hungary provided students with advanced services in subjects like languages, advanced math,

science, and the arts. Hungary also made efforts to identify minority groups like socially disadvantaged children and children from rural villages and different socioeconomic backgrounds (Herskovits, 2006).

In Serbia, gifted education received financial support for identifying gifted students and training in-service teachers (Sefer, 2006). This funding required schools to provide extra-curricular activities, accelerate students, and provide more advanced subjects and awards. Similar to Hungary, special schools were created for students with musical, mathematical, language, and arts and crafts talents (Sefer, 2006). Turkey, however, does not have any gifted programs for primary students (K–8), but private schools do provide special services for gifted students such as differentiated education (Sak, 2006). This makes gifted programs more available to students of high socioeconomic status because low- or middle-class students cannot attend private schools (Sak, 2006).

Gifted Education in Arab Countries

Alamer (2010) noted that in Arab countries, there is no specific term for exceptional persons. However, other terms in these countries described ‘gifted’ persons as genius, super, talented, or smart. In Arab countries, generosity is viewed highly. Someone who is able to help two groups of people in the midst of an argument to reason together and come to a peaceful agreement would be generally valued in Arabic countries (Alamer, 2010). Similarly, someone capable of problem solving would also be well liked. Thus, ‘gifted’ individuals, who often exhibit these traits, are well received in Arab countries (Alamer, 2010).

Unlike the United States, most other countries do not have such a wide variety of criteria for identifying gifted students. Rather, identification is based mostly on individual intelligence tests and high achievement test scores (Hassan & Jamaludin, 2009). Thus, many students are not considered for gifted programming due to these strict measures. In addition to being different with respect to the actual identification process, the United States and Arabic countries differ in what they focus on in general education classrooms. Hassan and Jamaludin (2009) pointed out that the United States, and Western countries in general, tended to focus on developing critical thinking skills and the independent growth of the student. Typical Islamic education, however, focuses much more on the teacher's role and on authority in general. Students are not encouraged to give their own point of view as would be the case in a U.S. classroom setting (Alawfi, 2016; Hassan & Jamaludin, 2009). That being said, both Western and Arab countries realize the need for globalization of learning standards. However, to accomplish a feat as large as creating global standards and approaches for education, each region's cultural influences must be taken into account (Alawfi, 2016).

In a comparative study, Al-Zarkoosh and Al-Abadi (2018) evaluated gifted education programs in three Arab countries: Iraq, Jordan, and Saudi Arabia. In 1969 in Iraq and Saudi Arabia, and in 1988 in Jordan, gifted identification and services were first implemented. Saudi Arabia and Jordan chose to adopt the U.S. model to format their gifted education services—they provided differentiated education as well as emotional and social support for gifted learners. Due to various issues (e.g., the war) in Iraq, this country lagged behind the other two in advances in gifted identification and education (Al-Zarkoosh & Al-Abadi, 2018).

In Egypt, the gap between theory and practice is a big problem (Mohamed, 2006). Egyptian students are identified as gifted using three intelligence tests: pictorial, identification of interests and attitudes, and creative production. However, the lack of other methods for identifying gifted students has created an absence of strategies for teaching gifted students (Mohamed, 2006). According to Mohamed (2006), there are only a few gifted schools in Egypt and most public schools do not have any programs for gifted students.

Looking specifically at Saudi Arabia, although they model their gifted education services after the model used in the United States, they differ in the focus they put on the spiritual dimension (i.e., religion where memorizing the holy book is considered one of the gifts of the student; Alawfi, 2016). In Saudi Arabia, gifted programming consists of ability grouping, pull-out (taking a student from a regular class and putting him/her in gifted programming), enrichment, problem solving, compacting, and, at times, academic acceleration (Ministry of Education, 2019).

Despite these strategies, Saudi Arabia lags behind the United States in research and development, achievements in science, technology, engineering, and mathematics (STEM) fields, and the most advanced scientific methods for the development of gifted students and students with special needs (Alawfi, 2016; Aljughaiman & Grigorenko, 2013; Murry & Alqahtani, 2015). To improve Saudi Arabian gifted education, a few factors require primary consideration: (a) there needs to be an increase in resources available to schools (e.g., technology, required materials for class, teacher training); (b) schools need to increase the number of teachers with training in gifted education; and (c) there needs to be a shift away from the emphasis put on memorization to an emphasis on

critical and creative thinking as is used in the United States' gifted education systems in various states (Alnahdi, 2014). In addition to these needs, there also needs to be some standardization with respect to how gifted education should be implemented (i.e., there are two schools of thought in Saudi Arabia—gifted education is provided separately from regular classroom education and gifted education is provided within the regular classroom education (Alawfi, 2016; Alnahdi, 2014; Alqefari, 2010; Batterjee, 2013).

However, factors potentially make it difficult for Saudi Arabia to adopt a gifted education system similar to that of the United States. Alamer (2010) showed in his findings that due to cultural or religious biases, Saudi Arabian teachers he interviewed did not actually appreciate traits valued in the United States such as talkativeness, perseverance, not following the rules, and creativity in language and arts (e.g., musical creativity, drawing abilities). There was also a gender aspect to how Saudi Arabian teachers viewed leadership; female teachers were able to see leadership ability in women and men alike while male teachers only perceived men to have leadership abilities.

Disabilities

Defining the Term “Disability”

There are two different models for defining disability: the medical model and the social model. The medical model does not make efforts to differentiate between disabling conditions such as intellectual disability, blindness, paraplegia, and various other conditions that do not necessarily cause disability. According to Donoghue (2003), in 1951, Parsons approached health and illness with a functional mindset. In his opinion, individuals with illness or disability had well-defined expectations and limitations in their roles in society. Those who were ill were not subjected to the same obligations and

responsibilities with which the general population dealt. An ill or disabled person's condition was not considered "desirable," so they were supposed to seek out professional help to remedy their situation (Donoghue, 2003).

In response, the social model was created in backlash to the medical model in the 1980s (Oliver, 2004). It used political and legal actions and education to help redefine disability (Donoghue, 2003). The social model holds as its tenet the belief that children of all backgrounds, including those with disabilities, can learn and contribute greatly to their community and to classroom experiences (Donoghue, 2003; Hughes & Paterson, 1997). This model did not view disability as a condition defining a person but rather proposed that the medical definition of disability was a social construct whose objective was to create an imbalance in equality between the disabled and nondisabled (Donoghue, 2003). In essence, the social model viewed the medical model as a system that created barriers to a disabled person's participation in society (Hughes & Paterson, 1997).

Over time, thanks to the social model, there have been three essential changes in services to students with special needs. Until the 1960s and 1970s, disabilities were viewed as flaws and abnormalities. Individuals with disabilities were often forced into isolation and exclusion in institutions (Martin, Martin, & Terman, 1996; Yell, Rogers, & Rogers, 1998). In the early 1900s, some schools opened their doors to individuals with disabilities but the norm was still institutionalization (Skiba et al., 2008). In the 1950s and 1960s, thanks to the Civil Rights Movement, litigation and legislation changes occurred that allowed minorities (especially African Americans) to benefit from the same opportunities to which White people were privileged (Skiba et al., 2008). In the 1960s and 1970s, activists began to notice disproportionately higher percentages of Hispanic

and African American students in special education classrooms. They determined this was likely the result of segregation rather than disability diagnoses (Skiba et al., 2008). By the 1980s, activists gained acceptance concerning inclusion for individuals with disabilities. Several defining court cases granted educational rights to individuals with disabilities (Skiba et al., 2008).

In the 1980s, the Americans with Disabilities Act (ADA) afforded official anti-discrimination protection (Triano, 2000). More recently, individuals with disabilities have been pushing toward empowerment, and schools are held more accountable to provide an equal educational opportunity for all students (Triano, 2000). In 2004, the reauthorization of the IDEA act continued to push the empowerment of individuals with disabilities. However, to qualify for special education due to a disability, a child must be categorized with one of the 12 defined disabilities in IDEA (Triano, 2000). Thus, the thing students often considered a positive part of their identity was almost always used against them because their disability was what was said by medical professionals to contribute to their poor academic achievement (Triano, 2000).

The IDEA (2004) gave students with disabilities access to schools and clinical teams that, with the help of students' parents, supported disability assessment efforts and determined instructional and placement supports needed for students to be successful (Connor & Ferri, 2007). In Part B of IDEA, which handles the educational service for students who are labeled as having a disability, are six principles: (a) zero reject, (b) protection in evaluation of eligibility, (c) free appropriate public education, (d) least restrictive environment, (e) procedural safeguards, and (f) parental participation. It included details like a scientifically-based curriculum to ensure success and specialized

teacher training. Overall, these changes improved educational outcomes for students with disabilities and granted the appropriate adaptations and interventions necessary for these students to access a full general education curriculum (Connor & Ferri, 2007; IDEA, 2004; Lee, 2018).

Examining Disabilities Internationally

Limited data are available internationally about people with disabilities (Shakespeare, 2013). Although international data are scarce, in order for policy makers, analysts, and researchers to uncover the rate of occurrence of disability in various regions and identify needed policies, educational efforts, or services, more research is required (Mitra & Sambamoorthi, 2014). Rouse, Henderson, and Danielson (2008) reported that because there were substantial inconsistencies in how different countries defined disability, it was hard to find disability statistics that were comparable internationally. These authors believed the best way to serve students with disabilities was to look at their learning environment and their participation in it rather than just looking at their impairment. However, many countries still use the medical model when looking at disability (Rouse et al., 2008).

Some scholars have reviewed special education internationally. Florian's (2007) *SAGE Handbook of Special Education* sought to promote the idea of "inclusive education" internationally. Florian defined inclusive education as "understood in the context of 'Education for All,' an international policy intended to provide universal access to primary school education" (Florian, 2007, p. 2). But different countries' perspectives make it harder to agree on how to identify and serve students with disabilities.

Surprisingly, different countries like England, unlike the United States, “do not, strictly speaking, have a system of special education” (Dyson & Kozleski, 2008, p. 178). Instead of using the term *disability* to describe students receiving special education services, they instead use terms like “difficulties,” “conditions,” “impairment,” and “physical disabilities” (Wedell, 2008, p. 57). The 1981 Education Act established a system in England that helped identify special educational needs for students. This act explained what is meant by “needs” by looking at students “in relation to everything about him, his abilities as well as his disabilities—indeed all the factors which have a bearing on his educational progress” (Dyson & Kozleski, 2008, p. 179). Instead of labeling students with a disability, the schools created an individualized intervention to help students with their specific needs. In opposition to the United States, it was not required to categorize the student with special needs for them to receive services.

The English system requires no presumption of disability before identifying a child as having special educational needs. All that is required is that the child experiences difficulties in schooling such that her or his teachers feel the need to do something to help. (Dyson & Kozleski, 2008, p. 185)

According to Dyson and Kozleski (2008), categorizing students this way in England provided students who were struggling in the general education classroom with special education services that benefited them.

Disability in Saudi Arabia

As has been the case in most countries, Saudi Arabia has made provisions for special education for students with disabilities who are not able to learn as easily in the general classroom environment as their peers. In Saudi Arabia, there have been

continuous efforts to create and develop the special education system; however, it is still in the developmental stages (Aldabas, 2015; Altamimi, Lee, Sayed-Ahmed, & Kassem, 2015). Levin, O'Donnell, and Kratochwill (2003), in relation to educational or psychological intervention research, found four stages were involved in the development of an educational research program: (a) going to the drawing board and coming up with ideas and methods to implement an educational program, (b) performing experiments with these ideas in a controlled classroom setting, (c) taking what was learned from stages one and two and creating an intervention that was proved to be effective (based on what was learned) in a regular classroom setting, and (d) determining the biggest factors that played into the successful implementation of the intervention suggested in stage three.

Based on the four stages posited by Levin et al. (2003), Altamimi et al. (2015) stated that Saudi Arabia is still in the first stage. To advance the stage in which Saudi Arabian special education lies, Aldabas (2015) stated that the Ministry of Education in Saudi Arabia needs to focus on defining the hiring qualifications for special education teachers and these qualifications need to be incorporated into Saudi Arabian special education teacher preparation programs. In 2001, the Regulations of Special Education Programs and Institutes were created based on the U.S. political model for disability (Altamimi et al., 2015). The Regulations of Special Education Programs and Institutes dictated what rights students with disabilities who qualified for special education had and what regulations there were for these students (Altamimi et al., 2015).

Twice Exceptionality

As the inclusion of students with disabilities and special needs in standard educational institutions has increased, research in special education has begun to examine and address the needs of students with disabilities who might also be gifted (Baldwin, Baum, Pereles, & Hughes, 2015; Baum, 2004). Through this research, a new population of gifted students, 2E students, has gained attention. Twice-exceptional students are those who have extraordinary talents or abilities and simultaneously have challenges in learning, attention, social awareness, and behavior. Among 2E students, a disability could mask their giftedness or vice-a-versa (Baum, 1989; Brody & Mills, 1997; Reis et al., 2014). Twice-exceptional students often perform lower than expected on achievement and ability tests due to learning deficits that resulted from their disability (Crepeau-Hobson & Bianco, 2011). Theoretical frameworks for twice exceptionality posit that 2E students demonstrate both gifted abilities and disabilities that interact with one another to create unique circumstances that might be detrimental to school performance. Therefore, 2E students require special identification processes, interventions that address both gifts and disabilities, and support for their social-emotional development (Baldwin, Baum et al., 2015).

History of Twice Exceptionality

Early research demonstrated that learning difficulties were not necessarily associated with low intelligence (Baldwin, Baum et al., 2015). In fact, the twice exceptionality we speak of herein came not from the idea of learning disabilities but from giftedness. Twice exceptionality has been studied informally and formally by numerous researchers since the 1920s, starting with Hollingworth's *Special Talents and Defects*:

Their Significance for Education published in 1923 (cited in Baldwin, Baum et al., 2015). Reis et al. (2014) suggested twice exceptionality (which they called ‘dual diagnosis’) was first mentioned in the 1940s in research performed by Hans Asperger who conducted research that focused on people who seemed to exhibit signs of mental disorder, particularly children. This research focused on those individuals’ behaviors, communication with others, and their intelligence. Between 1944 and 1973, significant research was published about Asperger’s syndrome by working with children with traumatic brain injuries and educating children with developmental disabilities (Reis et al., 2014).

In 1973, Elkind introduced the idea of gifted children with learning disabilities in *The Gifted Child with Learning Disabilities*. Numerous key works regarding children with a combination of gifts and certain areas of disabilities were published during the 1980s and 1990s that highlighted the unique needs of 2E students. Concurrently, public school programs for gifted students with learning disabilities appeared in New York, Maryland, and New Mexico (Baldwin, Baum et al., 2015).

The federal government first mentioned ideas related to 2E in the 1972 Marland report wherein they mentioned that one could both be gifted and have a learning disability. However, in Marland’s report, the federal government did not give a federal definition to gifted students who also had disabilities or a method for identifying these students, which allowed schools to carve their own path with respect to how to handle these students (Assouline & Whiteman, 2011). The term *twice-exceptional* started to appear in federal and state policies as early as 2000. Between 2000 and 2015, several states introduced policies specific to 2E students (Lee, 2018). At the federal level, the

reauthorization of the IDEA in 2004 acknowledged twice exceptionality conceptually and supported a team-based approach instead of a discrepancy model for identifying learning disabilities (Assouline & Whiteman, 2011). This legislation reflected acknowledgement and support at the federal level for the notion that twice exceptionality is a complex phenomenon in relation to identifying 2E students and providing them with appropriate services (Assouline & Whiteman, 2011; Foley-Nicpon, Assouline, & Colangelo, 2013; Leavitt, 2009; Sexton, 2016).

The National Twice-Exceptional Community of Practice (cited in Baldwin, Omdal et al., 2015) called for a dual-emphasis approach to providing appropriate special education services to 2E students. Twice-exceptional students' gifts need to be appropriately challenged and they need to receive extra support and accommodations for their disabilities at the same time. Research generally supported that 2E students' strengths should be the first point of focus before addressing challenges (Baldwin, Baum et al., 2015; Coleman & Roberts, 2015). Baldwin, Omdal et al. (2015) expanded on this definition and suggested the following strategies for supporting 2E students: (a) focusing on student strengths and interests, (b) providing social and emotional support, (c) adapting educational techniques to academic strengths and providing accommodations for specific learning needs, and (d) ensuring a safe, supportive problem-solving culture that places value on success for every student. Efforts in the following areas support such a dual-emphasis approach.

Legislation Related to Twice Exceptionality

Ongoing changes have improved educational outcomes for students with disabilities and granted the appropriate adaptations and interventions necessary for these

students to access a full general education curriculum (Reynolds, Vannest, & Fletcher-Janzen, 2013). Until the 1960s and 1970s, disabilities were simply viewed as abnormalities and individuals with disabilities were often forced into isolation and exclusion in institutions. Some schools opened their doors to individuals with disabilities, but the norm was still institutionalization (Reynolds et al., 2013; Yell et al., 1998). U.S. legislation related to educational reform developed concurrently with the Civil Rights Movement and early efforts focused on obtaining access to public education for children with physical disabilities and profound intellectual disabilities.

The Rehabilitation Act of 1973, Section 504, was the first major step toward broader antidiscrimination in education, stating that any recipient of federal funding must end any educational discrimination toward students with disabilities (Zirkel, 2004). Section 504 protected *qualified individuals with disabilities*, and *individuals with disabilities* were defined as persons with a physical or mental impairment that substantially limited one or more major life activities (U.S. Department of Health and Human Services, 2006). This law protected against generalized discrimination based on disability but did not provide any specifications for gifted children or those with learning disabilities (U.S. Department of Health and Human Services, 2006). Shortly thereafter, the Education for All Handicapped Children Act of 1975 (modified later to IDEA) mandated free appropriate education for all children with disabilities but did not include gifted and talented children (Baldwin, Baum et al., 2015; Martin, Martin, & Terman, 1996; Yell, Rogers, & Rogers, 1998).

Concurrent with changes in theories and definitions of giftedness, the Gifted and Talented Children's Education Act was passed in 1978 (Baldwin, Baum et al., 2015).

This act established a federal office and a national training institute for gifted and talented students. The 1988 Jacob Javits Gifted and Talented Students Education Act was the first legislation that emphasized the rights of gifted and talented students from disadvantaged backgrounds (Baldwin, Baum et al., 2015; Baum, 2004). The Javits Act also encouraged many projects and research activities targeted at increasing educators' understanding of twice exceptionality and the unique learning requirements of 2E students such as The Twice-Exceptional Child Project and Project High Hopes (Baldwin, Baum et al., 2015; Baum, 2004).

Although the issue of twice exceptionality was well established by the 1990s, gaps in legislation continued to cause difficulty in terms of identifying twice exceptionality and providing appropriate services. The IDEA (2004) made several specific provisions for special education including free appropriate public education for students with disabilities, individual education plans, least restrictive environment, appropriate evaluation processes, parent and teacher participation, and procedural safeguards. However, the IDEA did not provide specific guidelines for 2E students. When the IDEA was reauthorized, it acknowledged that students might be gifted while having one or more disabilities (Martin et al., 1996). "Significantly, the mention of students with disabilities who may also have gifts and talents was noted for the first time in the priorities for funding" (Baldwin, Baum et al., 2015, p. 210). Under this law, gifted students who met eligibility requirements for a disability were entitled to the services IDEA provided. However, the courts failed to recognize *dual-exceptionality* in most court hearings and decisions because the child's giftedness masked the disability under consideration (Zirkel, 2004). Although progress has been made in efforts to recognize 2E

students' rights within legislation, these efforts have been inconsistent. There remains a critical need for legislation that acknowledges the issues 2E students face and addresses the need for specialized identification and services for these students.

Case Law Related to Twice-Exceptional Students

Although legislation has clearly raised the issue of twice exceptionality, legal definitions regarding disability still create challenges for 2E students. Conflicts between IDEA (2004), Section 504 (U.S. Department of Health and Human Services, 2006), and specific state laws often make it difficult to establish eligibility based on the necessary criteria. Section 504 defined disability in terms of interference with normal activity, and IDEA provided various classifications for all types of disabilities but not for giftedness. State laws vary widely (Zirkel, 2010). For example, a Tennessee federal court upheld a district court determination that denied IDEA eligibility to a gifted student with serious socialization problems based on the classification of emotional disturbance (Zirkel, 2010). The court concluded the child was not adversely affected because the student achieved high grades and standardized test scores. In another case, a Missouri court ruled against a child's IDEA eligibility based on an evaluation made by the school district, ignoring the private diagnoses of multiple impairments including ADHD, obsessive-compulsive disorder, and Asperger's syndrome (Zirkel, 2004, 2010).

Overall, court cases involving 2E students have been cumbersome because the issue itself is complex. Furthermore, the financial burden of pursuing such cases often fell upon parents who were unable to continue pressing matters indefinitely. There is a need for stronger gifted education laws with specific content regarding twice

exceptionality. Parental involvement is also critical to ongoing improvements in meeting the needs of children with multiple exceptionalities (Zirkel, 2010).

Characteristics of Twice-Exceptional Students

Classroom behavior and performance vary widely among 2E students. Some 2E students might excel with some basic skills and struggle with others. For example, 2E students might have a high verbal ability that does not translate to writing or reading. They might excel in critical thinking and solving ‘real-world’ problems but might be unable to concentrate, and they might come across as being disrespectful in school. Twice-exceptional students also might have an unusually high level of creativity while lacking organization and memory skills (Baldwin, Omdal et al., 2015; Baum, 2004; Trail, 2011). These students might also be inattentive, disorganized, and disruptive in class. They might also have social and emotional difficulties (Baum & Owen, 1988; Crawford & Snart, 1994; Robinson, 1999).

According to Jeweler, Barnes-Robinson, Shevitz, and Weinfeld (2008), the four most common challenges for 2E students are writing, organization, reading, and memory. The more common types of disabilities students possess in conjunction with being gifted are ADHD, ASD, and SLD; these disabilities often make gifted characteristics difficult to detect (Foley-Nicpon et al., 2011). The variance in observed behavior and skills among 2E students makes it difficult to establish norms and criteria for identifying them and to develop appropriate interventions (Foley-Nicpon et al., 2011).

It is useful to know common characteristics associated with twice exceptionality to establish a starting place for identifying and serving 2E students. The current theoretical framework for twice exceptionality centers on dual emphasis on gifts and

disabilities and the resulting strengths and challenges that might co-occur. A characteristics chart that consists of common strengths and challenges is presented in Table 1. Just as it is important to identify learning and behavior challenges, it is also critical for parents and educators to look for strengths that might indicate potential giftedness (Baldwin, Omdal et al., 2015, Baum, 1990, 2004).

Table 1

Strengths and Challenges of Twice-Exceptional Students

Strengths	Challenges
<ul style="list-style-type: none"> • High verbal ability • Excel in critical thinking such as solving “real-world” problems • High level of creativity and observation skill • Resourceful • Curious • High imagination • Ask lots of questions • Advanced Ideas and opinions • Special talent or consuming interest 	<ul style="list-style-type: none"> • Unable to concentrate • May come across as being disrespectful in school • Lack organization and memory skills • Manipulative • Opinionated • Argumentative • Sensitive to criticism • Inconsistent academic performance • Difficulty with written expression • Difficulty with social interaction

Adapted from Trail, 2011, p. 3.

Difficulties Faced by Twice-Exceptional Students

One of the biggest difficulties of providing services for 2E students is there are numerous subgroups and specific qualities among these students. For example, twice exceptionality can come in approximately 13 categories ranging from gifted students with ADD to those with specific learning disabilities. Giftedness itself is hard to define simply because there is little consensus as to its definition. According to Brody and Mills (1997), conflicting definitions are produced by different approaches (e.g., psychometric, developmental, or information-processing approaches). Giftedness might present itself as a range of qualities including academic giftedness, creative giftedness, and leadership giftedness. Each of these new populations requires unique and complex solutions and strategies for development (Baum, 2004). Due to the lack of definition of giftedness, school districts make their own cutoffs for specialized services, leading to the phenomenon of ‘geographic giftedness’ (McCoach et al., 2001), and these school districts develop their own definitions based on simpler and more isolated studies for their own students (Lovett & Sparks, 2013). Other barriers facing 2E students include lack of identification, comorbidity that masks the issues, and lack of understanding in schools of the emotional needs of these students.

The lack of support for 2E students often has extreme consequences for their learning and development because originally these students did have a high level of motivation and much confidence. In a study of 2E students in a university program, Reis, McGuire, and Neu (2000) found these students had not been taught compensation strategies for their disabilities or included in any gifted and talented education. Because of this lack of support and assistance, all the students had very negative views of

schooling in general. These negative views presented themselves as feelings of failure, low self-esteem, and depression, which might also cause the student to act aggressively or hyperactively.

Another challenge commonly faced by 2E students is lack of proper identification and the unwanted influences of labeling. Oftentimes, teachers notice a learning disability, which then leads them to overlook giftedness—the masking issue. For example, Minner (1990) performed a study of nearly 200 gifted and talented educators in which they asked each of the teachers to read a short passage about a hypothetical gifted student. The students all had the same gifts but they were labeled as having a learning disability or not and were from a low, middle, or high socioeconomic status. Teachers were significantly less likely to recommend students with lower socioeconomic backgrounds or who had a learning disability diagnosis to gifted programs.

Similarly, Missett, Azano, Callahan, and Landrum (2016) found in a case study involving a gifted third-grader with emotional disabilities that the teacher recognized the gift but still taught to his disability. The teacher's expectations about the student's academic and behavioral deficits affected her instructional practices and led to her not providing enrichment or advanced learning opportunities for his strengths. The latter scenario is often a reality in public school settings. Although best practice dictates that both learning needs and strengths should be addressed by teachers with a focus on remediating through strengths, deficits tend to still be a teacher's focus when working with 2E students (Missett et al., 2016).

Identification of Twice-Exceptional Students

Sexton (2016) pointed to the drastic need for some kind of model or outline for identifying 2E students because as these students age and move into middle school and secondary school, the gap between their actual achievement and their academic achievement widens greatly. Traditional testing methods have failed to identify 2E students reliably because of the way gifts and disabilities interact, or masking issues, such that the gift might mask the disability, the disability might mask the gift, or the two might mask each other and go undiagnosed. When a gift masks a disability, the student often has a mild disability that goes unnoticed so the student is often placed in advanced programs from a young age despite having an undiagnosed disability. The student could excel initially but frequently begins to fall behind when his compensatory skills are not enough for him to succeed. At that point, this student is sometimes simply thought of as lazy or disorganized instead of having a disability (Baldwin, Omdal et al., 2015; Brody & Mills, 1997; McCoach et al., 2001).

In the opposite case, when disabilities mask giftedness, the student might have a more noticeable disability and is typically placed in special education programs at a young age. Here, remediation is the focus and these students' abilities are not nurtured or even identified. Baum (cited in Brody & Mills, 1997) found approximately 33% of students with a disability also exhibited a high intellectual ability that was not recognized. Finally, in some cases, the disability and gift masked each other almost entirely. Usually the students appeared average to their teachers. In some instances, educators might notice that the students have talent, but occasional inappropriate behaviors might prevent any further action. The discrepancy between their ability and their achievement was not

noted so they received neither special nor gifted education. These students were often overlooked, became frustrated, and suffered in school (Baldwin, Omdal et al., 2015; Brody & Mills, 1997; McCoach et al., 2001).

Masking issues and bias in identification processes made it hard to determine how frequently twice exceptionality was the core issue with a student who had difficulties. Due to masking, 2E students were sometimes placed in gifted programs or special education classes without being correctly identified as 2E students. However, these students' progress could sometimes stagnate since they tended to not thrive as much in special education classes as they would have if they had been placed in gifted programs (Sexton, 2016). Furthermore, testing programs and teacher perspectives and recommendations could be biased (Crim, Hawkins, Ruban, & Johnson, 2008).

Given that masking and various sources of bias made it difficult to identify 2E students, current researchers have advocated a balanced, integrated approach that includes a comprehensive evaluation of psychological processes as well as a longitudinal evaluation of the student's performance in different areas. Specialized identification processes that use multiple sources of input to probe for masking issues are recommended for recognizing and evaluating the needs of 2E students. For example, input from teachers and family members is critical to the identification process in addition to a variety of cognitive measures and behavioral data. Three major areas to consider during the identification process are evidence of a gift or talent, a disconnect between ability and achievement, and the appearance of an information-processing deficit (Brody & Mills, 1997).

Sexton (2016) reviewed three major methods for identifying 2E students: the IQ discrepancy-performance model, the response-to-intervention (RtI) model, and a mixed-methods approach to identification. Although some studies reported using the IQ discrepancy-performance model for identification, Assouline, Nicpon, and Whiteman (2010) demonstrated problems with putting too much emphasis on IQ scores. According to their study, relying too much on those scores led to 2E students being overlooked for gifted programming from which they could have greatly benefited. In her literature review, Sexton noted that the majority of current research favored the use of the RtI model.

Approaches that combined the RtI model with standardized assessment procedures received support from researchers in the field of gifted education (Crepeau-Hobson & Bianco, 2011; McCoach et al., 2001). A balanced and comprehensive approach to identification might reduce the number of 2E students who are unrecognized and underserved (Crepeau-Hobson & Bianco, 2011; McCoach et al., 2001). After assessing a subset of students with SLD in their qualitative research, Assouline et al. (2010) showed the implementation of a comprehensive evaluation process led to a more accurate identification of 2E students. Therefore, use of a comprehensive assessment should be considered for identifying 2E students as well as educating teachers in referring and identifying them.

The Labeling Issue

Labeling students as gifted or as having a disability presents an important challenge to educational professionals. A student is labeled with a disability if that individual has learning deficits in areas like reading, writing, or solving mathematical

problems. In the contemporary world, a student is labeled as gifted when they excel or demonstrate the potential to excel intellectually or in specific areas like reading, writing, or solving mathematical problems. The purpose of labeling students from educators' perspectives is that labeling allows schools and teachers to allocate needed extra care and attention to students who need to be more challenged or those who need learning support (Matthews, Ritchotte, & Jolly, 2014; Mukuria & Bakken, 2010).

But labeling is considered a double-edged sword. On the one hand, research has shown the usefulness of labeling students in “providing a means of classification, diagnosis and differentiated treatment for individual students; laying a foundation for future research; and establishing a starting point for acquiring support and resources for a specific disability” (Gallagher, 1976, p. 3). On the other hand, labeling could prevent educators from seeing the other aspects of the student beyond labeled issues (Matthews et al., 2014).

In the United States, labeling is also used to assign specific funding to schools based on categorized disabilities (Matthews et al., 2014). Schools also use labels in their records to help organize scheduling or provide services for labeled students (Matthews et al., 2014). Given the potential effects of labels on the perceptions and behavior of teachers, parents, and students, it is important to consider theories of how labeling influences behavior.

Labeling Theory

Labeling theory (Becker, 1963) attempts to determine how and why specific labels influence the behavior of both those who are labeled and the people who interact with them. Of interest in educational settings is labeling affects the expectations and

behavior of students, teachers, and parents (Matthews et al., 2014). The fundamental problem with labeling is it introduces bias of one kind or another. The effects of both positive and negative labeling were demonstrated in numerous empirical studies (Babad et al., 1982; Gates, 2010; Hoffman, 2014; Lalvani, 2015; Moon, 2009; Rosenthal & Jacobson, 1968; Shifrer, 2013). For example, students who are labeled as being gifted might be overlooked for other needed services because others assume that they do not need help (Moon, 2009). In contrast, students who are labeled with disabilities might have lower expectations of themselves and others might have lower expectations of them (Mukuria & Bakken, 2010). In the case of gifted students, labels could produce either positive or negative stereotypes, depending on differing points of view. A gifted label might be interpreted as a negative stereotype by some and a positive stereotype by others (Gates, 2010; Matthews et al., 2014).

In terms of the interpersonal dynamics involved with labeling, Becker (1963) purported that interactions determined how individuals responded to a given label and those who were labeled used the reactions of others to justify behavior that fit the label. Although Becker's work was specifically related to deviant behavior, others applied the same notion to gifted labeling because it was evident that when a person was labeled as unique or gifted, it could influence their behavior. In other cases, students may change their behavior to avoid an unwanted label (Spencer, Steele, & Quinn, 1999).

The halo effect could lead to bias in labeling. In labeling theory, the halo effect posited that a person's initial perception of an individual, whether positive or negative, would bias all other perceptions they held about that person (Nisbett & Wilson, 1977). For example, physical attractiveness has been demonstrated as biasing other judgements

about an individual in a positive direction. Physically attractive students are perceived to be smarter (Moore et al., 2011). Similarly, the positive halo effect associated with a gifted label could lead others to assume the student could be completely independent or that he or she had no emotional needs (Moon, 2009). Given the demonstrated power of the halo effect, it is critical to consider ways to reduce bias in the behavior and judgements of teachers who interact with students who have special needs.

Pygmalion theory presented by Rosenthal and Jacobson (1968) uses the concept of self-fulfilling prophecy to explain why expectations (or labels) increased (galena effect) or decreased (golem effect) performance. This theory posited that people internalized how other people defined them as they developed their self-image and they modified their behavior to fit that self-image—the self-fulfilling prophecy. Rosenthal and Jacobson demonstrated that when teachers expected improved performance from their students, the children's performance was improved. This study supported the hypothesis that behavior and academic outcomes could be positively or negatively influenced by others' expectations—the observer-expectancy effect. These researchers argued that biased expectancies created self-fulfilling prophecies. Pygmalion theory suggests that when a student is labeled as being gifted or with disability, his/her self-image and the expectations of his/her parents and teachers are affected. For example, students who are labeled as having a learning disability might expect less of themselves in terms of academic performance and their parents might also have low expectations for them. These reduced expectations potentially inhibit a student's academic performance (Babad et al., 1982; Lalvani, 2015; Matthews et al., 2014; Shifrer, 2013).

Matthews et al. (2014) found parents avoided using the label “gifted” because of possible negative judgement by others. Moreover, these researchers found that labeling 2E students added to difficulties because teachers and other students remained focused on their disability and ignored their giftedness. In terms of disability labels, the influence of an SLD label on both parents’ and teachers’ expectations was confirmed by Shifrer (2013). This researcher conducted a longitudinal study with a sample of 11,740 adolescent students across 750 schools that compared the actual academic performance of students to their parents’ and teachers’ expectations for them. Shifrer observed that both teachers and parents had lower post-high school expectations for students who were labeled with learning disabilities than for similarly performing and behaving students who were not labeled as having a learning disability.

Shifrer (2013) found that children could improve their academic performance only if the expectations of their parents increased. Children who are diagnosed as having a learning disability might be enrolled in special education programs within schools where they are not forced to push themselves to enhance their skills and abilities (Lalvani, 2015). Labeling might not only reduce the expectations of parents but also shape children’s behavior such as efforts to improve their learning skills. Collectively, current research showed how labeling a child could inhibit their academic effort and performance and how this presented a substantial problem throughout the educational arena (Lalvani, 2015; Shifrer, 2013).

In addition to creating distorted expectations for children labeled as being gifted or having a disability, social stigma associated with the label itself also affects labeled students’ educational performance (Lalvani, 2015). For example, Matthews et al. (2014)

found parents had differing views regarding the use of the gifted label. Matthews et al. found that parents of gifted children fell into two broad categories based on their use of the gifted label in conversations with others: engagers and nonengagers. These researchers observed that engagers were more comfortable with using the gifted label in conversations with others because, for these parents, letting others know about giftedness helped them better understand the needs of gifted children. Parents who felt comfortable using the gifted label with others expressed they did so to help increase general awareness about giftedness and diversity in children. On the contrary, nonengagers did not feel comfortable using the gifted label when talking about their children because of the presence of social stigmas attached to it. Overall, findings demonstrated that parents viewed labeling differently depending on a variety of factors, and even parents of gifted children felt stigmatized by others if they used the “gifted label” in conversation so they chose to avoid using the term altogether (Matthews et al., 2014).

Labeling and Referral Biases

Labeling does more than affect a child’s self-image; it can also influence a teacher’s referral (or lack thereof) of a student for special programming. For example, Foster, Schmidt, and Sabatino (1976) showed how labeling bias could affect the referral process. Teachers in an elementary school were presented with a video of a young boy participating in everyday classroom activities. The teachers who viewed the video were divided into two groups: one group was made aware of the fact that the boy had an SLD while the other group was told he was an average student. Both groups were shown the same video. Despite this, the group who was informed the boy had an SLD rated the boy

lower with respect to academic items and noted more behavioral issues than the group who was not informed of the boy's SLD. Labeling bias clearly was an issue in this case.

More recently, Allday et al. (2011) noted the occurrence of observational bias based on labeling. In their study, 122 preservice teachers observed the same student video, except with different exceptionality labels, and used momentary time sampling to record operationally defined on- and off-task behaviors. The labels used in the study included ADHD, oppositional defiant disorder, gifted, or no exceptionality. Based on a 2×4 factorial analysis of variance (ANOVA), the results of this study demonstrated a significant effect for the exceptionality label such that more off-task behavior was recorded for students with the oppositional defiant disorder label and less off-task behavior was recorded for students with the gifted label. Ohan, Visser, Strain, and Allen (2011) further supported the effects of labeling bias. After being informed a child had ADHD, teachers' negative expectations increased, their labeling of personal negative emotions increased, and their confidence in their ability to instruct the child decreased when reading several vignettes about that child.

In addition to the fundamental bias that occurs with labeling, a teacher's specific area of practice could also influence whether they are willing to refer students to special education programming. Bianco (2005) investigated how LD and EBD labels influenced 195 general and 52 special education teachers' willingness to refer a student to gifted programming. All of the participants read the same student vignette (a student with gifted characteristics) with LD, EBD, or no exceptionality label. The results indicated that both groups of teachers were less willing to refer students with disability labels to gifted programming than to refer those with no label. Additionally, special education

teachers were less likely to refer a gifted student to gifted programming whether or not they had a disability label.

In a later mixed-methods study, Bianco and Leech (2010) included gifted teachers in a replication of the 2005 study and added a qualitative question to gain insight into the reasons for teachers' decisions to agree or not agree with referring the student to gifted programming. This study explored differences among 52 special education teachers, 195 general education teachers, and 30 gifted education teachers in their willingness to refer students with LD, EBD, or no exceptionality label to gifted programming. A 3×3 factorial ANOVA demonstrated significant main effects for both teacher credentials and label type, demonstrating that teachers' decisions were influenced by both the teachers' area of expertise and by the presence or absence of a disability label. Further, the results indicated special education teachers were least likely to refer a student to gifted programming regardless of labels. Overall, Bianco and Leech found all three types of teachers were less willing to refer students with disability labels to gifted programs than to refer identically described students without a disability label.

In contrast, Nichols (2015) conducted similar research and found willingness to refer students to gifted education as well as the speed at which any eventual referrals happened were not particularly reliant on whether the teacher normally taught special, regular, or gifted education. Interestingly, however, results obtained by Hoffman (2014) strongly contradicted what Nichols found. Hoffman investigated referral decisions from four different educator groups: general education, special education, gifted education, and school psychologists. Participants from each group were given a short story on a student who had a diagnostic label of ASD, SLD, or no diagnostic label. Except for the

diagnostic label, the student was identical in each of the three stories. The story the participants received was randomized, meaning special education teachers did not necessarily get a story of a student with a diagnostic label.

Hoffman (2014) used independent t tests and ANOVA to confirm differences in mean referrals for the four groups of teachers across the different labeling groups. The results of this study showed special education teachers made the most special education programming referrals and gifted teachers made the most gifted programming referrals. For both groups, it did not matter what diagnostic disability label the student did (or did not) have. Also, students who had a diagnostic label were in the end referred significantly more often for special education programming, while this was not shown for students without a diagnostic label. Further, the student labeled as having autism had the most referrals to *both* special education and gifted programming. Thus, based on this study, a teacher's background was clearly related to the type of programming to which they would refer a student. Additionally, whether or not a student had a diagnostic label influenced how a teacher referred a student. The students with diagnostic labels were recommended for special education referrals significantly more than for gifted programming, while this difference was not evident in the no diagnostic label condition.

Jones (2014) focused on how the training of teachers could affect referral decisions to gifted programming, specifically for 2E students. This researcher investigated the relationship between a teacher's level of gifted training and their likelihood of referring a 2E student to gifted programming. Participants for this study were 102 K–12 teachers in the United States with varying degrees of training in working with gifted students: no training, specialized seminar, internship training, and certified.

The participants were given a vignette about a student who was struggling with an unidentified EBD and were then asked about whether or not they would refer the student to gifted programming. Using a chi-square analysis, Jones found teachers who had training in teaching exceptional students beyond what a regular K–12 teacher curriculum would normally include were more likely to refer a student to gifted programming (and overall referred more students). Based on the results of this study, the need for additional teacher-educator training in handling the specific needs of 2E students is warranted (Jones, 2014).

Sexton (2016) approached the issue of labeling and referral biases from a different standpoint. This researcher investigated public school teachers' level of knowledge regarding students in three special education categories—gifted-talented, learning disability, or 2E—to determine how knowledge levels affected their ability to identify and refer 2E students to appropriate programming. Participants included 478 K–8 teachers throughout Kentucky who completed a survey with questions concerning gifted, special education, or 2E students to assess how well they understood eligibility definitions, how familiar they were with the Kentucky state guidelines for these programs, how experienced they were with working with each of the three groups of students, and how confident the teachers perceived themselves to be in evaluating, identifying, and working with 2E students.

Sexton (2016) found that in Kentucky, teachers generally had very limited knowledge and training specifically related to twice exceptionality. Overall, teachers who had gone through additional training were more knowledgeable and better able to work with 2E students. Also, teachers with more training were more confident about

referring 2E students to needed programming and working with them; they were able and willing to consider a broader range of factors in their identification process for dual services. Therefore, it would seem more direct education in identifying and teaching 2E students, in Kentucky and likely other states, would improve teachers' ability to recognize and serve these students (Sexton, 2016).

Related to the difference between general education teachers and those with specialized training, Webster (2015) examined barriers that seemed to prevent general education teachers from referring students with SLD and/or ADHD to gifted programming. Participants included general education teachers from two public elementary schools in North Carolina. The data collected demonstrated relationships between the participants' experience, training, and knowledge of 2E students and factors that prevented these teachers from referring 2E students to gifted programming. The location chosen provided an opportunity to examine what types of training might be needed for rural public-school teachers to improve their understanding of 2E students and how to identify these students for gifted programming. The results showed four important factors prevented teacher referrals of 2E students for gifted programming: "lack of teaching experience, lack of training, lack of confidence, and stereotyping and misconceptions" (Webster, 2015. p. 87). Webster suggested the creation of or integration of a currently-used behavioral scale against which teachers could measure attributes of 2E students and the appropriateness of gifted programming for those students. Additionally, more professional development for regular education teachers in rural areas was suggested with respect to 2E students and their inclusion in gifted programming.

The Labeling Issue in Saudi Arabia

Labeling people with respect to their capabilities is a very critical issue in Saudi Arabia. To investigate this issue, Alariefy (2016) studied how having a child with a disability affected families. This study provided important information regarding the issue of using the term 'disabled' or 'disability' as a label in this country. Alariefy showed that parents refused to use the terms 'disabled' or 'child with a disability' for their children, instead preferring the term 'child with special needs.' Some parents even insisted their child was 'normal' or a 'gift from God.' The results of this study indicated the parents saw these labels as insulting or embarrassing and "many parents seem to believe that this term is like a stain, and they are trying to avoid the use of this label for their children" (Alariefy, 2016, p. 258). In Saudi Arabia, the term *disability* is often associated with someone in a wheelchair or someone with a severe mental disability. Therefore, some parents prefer to use 'disease' or 'ill' to describe their child, getting rid of their responsibility for their child's disability and making medical treatment a priority. Alariefy stated these findings aligned with Saudi Arabia's support of the medical model for understanding disability and the stigma associated with the word 'disabled' in this country.

Alariefy (2016) also found parents felt embarrassed by the disability label because they might receive a government subsidy, which they believed was for poor people, and "namely that parents often do not want to be seen taking alms from the government" (p. 196). Another reason for parents to refuse disability as a label was having had negative interpersonal experiences. For example, a mother of a child with autism stated that people said her child was "not polite, spoiled, I heard them thousands of times, but what

can I do?” (Alariefy, 2016, p. 201). Another challenge was that in some cases, parents of a child with a disability did not get support from their extended families and the extended family is central to the culture of this country.

Society also plays a role regarding this labeling issue. There has been a change in Saudi society recently, but a negative view of disability still exists in this country. People in Saudi Arabia refuse to use the term disability in society because they see the word as expressing undesirable terms like “crippled, lame, invalid, retarded and moron” (Alariefy, 2016, p. 258). Being labeled with a disability could make a person experience inferiority, pity, and fear from other people in society (Roush, as cited in Alariefy, 2016). Because Islam is the dominant religion in Saudi Arabia, perspectives about disability have been influenced by religious views and some parents see disability as a message from God. This message could be a “test,” “punishment,” or a “gift” (Alariefy, 2016, p. 260). Because Islam is seen as the main source of guidance for society, it is assumed most parents’ refusal of the word ‘disability’ could come from a reflection of the prophet Muhammad and the Quran’s views where the words “disabled” or “disability” are not mentioned (Alariefy, 2016).

Labeling also affects education in Saudi Arabia. The Saudi Educational Policy Document by the Ministry of Education (cited in Al-Mousa, 2010) stressed the importance of gifted students and students with disabilities receiving special services in the general classroom—called inclusion. The government provided identification processes and programs for all students, but the responsibility falls on the teachers to provide these programs. When teachers do not have sufficient information or understanding about gifted and 2E students, their attitudes reflect their beliefs and

misunderstandings, negatively affecting their students (Al Garni, 2012). To integrate students in general education classrooms requires that the student has no difficulties with their speech, writing, and learning. But children with a disability like autism who struggle with motor functions are placed in special education classes with other students with learning disabilities (Alariefy, 2016). Statistics from the Ministry of Education showed that 96% of students with multiple and severe disabilities were educated separately in 2007–2008 (Alquraini, 2010, p. 3).

Further, Alkhunaini (2013) conducted a study to investigate three different aspects of twice exceptionality: (a) attitudes and perceptions of Saudi Arabian gifted educators regarding 2E students, (b) how educators preferred to develop awareness and educate themselves about 2E students, and (c) how a diagnostic label did or did not influence referrals to gifted programming. Overall, it was found that referrals to gifted programming were not influenced by the presence, or lack thereof, of a diagnostic label. The majority of the educators were already aware of 2E students, but they asked to be given more specific training with respect to teaching this special population (Alkhunaini, 2013). The finding that teacher referrals were not influenced by the presence or absence of a disability label seemed extremely shocking. Other studies in different countries have shown the exact opposite (Bianco, 2005; Bianco & Leech, 2010; Jones, 2014; Sexton, 2016). Due to this inconsistency, more research about this topic is needed in Saudi Arabia.

In Saudi Arabia, the issue of labeling disabilities is complicated, involving issues with teachers, parents, and society. According to Alariefy (2016), most teachers in Saudi Arabia view parents as barriers to delivering effective education. On the other hand,

parents see the government as not having respect for their children with disabilities. One of these parents said: “How do we expect others to respect our children when the government does not respect them and give them their rights? If they received all their rights, as is happening in other countries, the respect would be imposed on everyone” (Alariefy, 2016, p. 201). Although this issue was studied with respect to disability, little research about 2E students has been conducted in Saudi Arabia, showing the need to investigate labeling 2E students with disabilities and how labeling influences their referrals to gifted programming.

The Educational System in Saudi Arabia

This section includes a history of the general education system in Saudi Arabia. The review covers how the development of special education for students with special needs has evolved in this developing nation and a brief summary about giftedness in Saudi Arabia. Finally, the current status of the twice exceptionality issue in Saudi Arabia is discussed.

Historically, policies for special education in Saudi Arabia have developed concurrently with legislation ensuring the basic civil rights of persons with disabilities. In Saudi Arabia, there is a stigma against people with disabilities and blame is placed on those people. More recently, Saudi Arabians view disability as the “result of the interaction between the individual’s characteristics and the social and physical barriers that prevent the expression of the full potential of the individual” (Alrubaian, 2014, p. 7). The history of education in Saudi Arabia reflects changes in the cultural stance with respect to persons with disabilities.

The original Saudi Arabian Ministry of Education was founded in 1952 and following that, special education for students suffering from blindness was formed (Aldabas, 2015; Al-Kheraigi, 1989; Mohammed, 2018). Furthermore, in 1962, the Administration for Special Education formulated by the Ministry of Education was created with the intent of ameliorating the classroom experience for students with disabilities (Aldabas, 2015; Al-Kheraigi, 1989; Mohammed, 2018). To actuate this goal, the Administration for Special Education created rules and regulations to ensure students that were labeled with disabilities have the rights they deserve (Al-Mousa, 2010; Alquraini, 2010). This administration also worked to enhance the quality of special education programming as well as provide opportunities for teaching professionals to upgrade their skills in working with students with disabilities. In the 1960s, most of the policies and programs for special education were directed toward students who were suffering specifically from blindness and deafness (i.e., a physical disability). From students in that specific disability category, some qualified to attend special day schools (Aldabas, 2015; Al-Kheraigi, 1989).

It was not until 1971 that students who suffered with intellectual disabilities, and not just physical disabilities, were recommended for special education and were permitted to take classes at special day/residential schools (Aldabas, 2015; Alquraini, 2010; Mohammed, 2018). The Legislation of Disability and the Disability Code, enacted in 1987 and 2000 respectively, collectively ensured that students with disabilities were given the same rights as regular students (i.e., students with no identified disabilities). Those two legislative acts guaranteed that students with disabilities were given access to free and appropriate special education programming to suit their academic needs

(Alquraini, 2010; Mohammed, 2018). From 1960 to 2000, several special day and residential schools and special education classes in public schools were established. Saudi Arabia expanded its definition of disabilities in the 1990s to encompass more disabilities as well as enacting educational policies that clearly explained mild and moderate intellectual disability, autism, and a broader scope of hearing impairment types (Aldabas, 2015).

Law 224, otherwise known as Regulations of Special Education Programs and Institutes, was created in Saudi Arabia in 2001 as the first piece of legislation for students with disabilities (Alquraini, 2010). It was modeled after special education policies and regulations in the United States (Alquraini, 2010). Law 224 described how to best adhere to the law such as how to conduct programs such as prevention and intervention, evaluation, assessments, individual education programs, and training requirements for students with disabilities (Alquraini, 2010). The *Document of Rules and Regulations for Special Education Institutes and Programs* (Ministry of Education, 2002b) detailed quality assurance procedures, which then forced agencies to administer set regulations.

Since 2000, Saudi Arabia continued its efforts to broaden, and made more specific when necessary, disability definitions as more research into the subject was published. As part of these efforts, resources for special education were included in the regular classroom setting. Saudi Arabian special education programming acknowledged a certain set of disabilities: moderate, profound, and severe disabilities including physical disabilities, deafness, blindness, intellectual disabilities, autism, and multiple disabilities (Aldabas, 2015; Al-Mousa, 2010).

Giftedness in Saudi Arabia

Gifted education in Saudi Arabia has progressed at the same time as work has been put into educational opportunities for students with disabilities.

The Education Policy in the Kingdom drew light to gifted and talented students in Saudi Arabia, and ignited an interest to place special focus on education for these students. Specifically in this decree, an important educational goal for Saudi Arabian gifted and talented students was to identify these students, support them, and arrange for diverse resources and opportunities to help enhance and expand their talents in a regular classroom setting, as well as through the addition of special programs. (Al Qarni, 2010, p. 16)

From the late 1960s to 1990, gifted and talented students were rewarded and supported via monetary or material rewards for academic success, monetary rewards for advanced studies, or family gatherings. The following logical step in the improvement of gifted and talented students' education was to create objective, scientific methods to both identify and educate these students (Al Qarni, 2010).

To complete this next step, efforts to create tools to identify and categorize gifted students were pushed in Saudi Arabia between 1990 and 1995. Similar to programs implemented in the United States, the Saudi Arabian National Education Project created programs that would identify gifted students and place them in gifted programming if found to be necessary (Al-Mousa, 2010). These programs included tests in various subjects such as STEM fields, literature, and arts. Additionally, the project created two new enrichment programs—one focusing on science and the other on math (Al-Mousa, 2010). Development programs for gifted and talented students were created through

collaboration of the Ministry of Education, the General Headquarter for Girls' Education, and the King Abdul-Aziz and his Companions Foundation for Giftedness and Creativity (Al-Mousa, 2010). In the 1999–2000 academic year, the Ministry of Education established a directive that focused on administering gifted and talented education for male students. The next year, female students were granted the same directive (Al-Mousa, 2010).

Section 4(8)(5) of Law 224, whose definition included identification and surveillance of special education for gifted students as well as ensuring their needs were met, was written by the Ministry of Education (2002a). From this legislation came the first official definition of giftedness: “an outstanding ability in one or more categories: intelligence, creative thinking, academic achievement, and special skills such as speech, poetry, art, sports, drama, and leadership” (Ministry of Education, 2002a, p. 8). In general, a gifted and talented student was “above average” in various classroom subjects as compared with their peers. Although this was a big achievement for gifted and talented students, and programming related therein, a gap in the education for 2E students still remained (Al-Mousa, 2010).

A study performed by Al Garni (2012) investigated the attitudes of Saudi Arabian preservice regular and special education teachers toward gifted students' education. Although these preservice teachers had an overall positive attitude regarding gifted and talented students, they were reluctant to modify the classroom setting/education method to meet these students' needs. This held true even when comparing the services gifted and talented students received to that of special education students. Indeed, although gifted students were highly valued in society, their needs were not met in either a regular

classroom setting or with special gifted programming (Al Garni, 2012). However, Al-Makhalid (2012) studied gifted education teachers' and regular education teachers' attitudes toward gifted students and gifted programming in terms of students' needs in Saudi Arabia. This researcher found both the gifted education teachers and regular education teachers had slightly positive views toward gifted students and gifted programming. The gifted education teachers were more positive about this than were the regular education teachers. The largest differences between the two groups of teachers was found in their knowledge of how to deal with gifted students and gifted education as well as what kind of training each group thought was necessary to work with the gifted. Unsurprisingly, gifted education teachers were more knowledgeable about all of the aforementioned topics, while regular education teachers required more knowledge about how to support gifted students and provide programming (Al-Makhalid, 2012).

Twice Exceptionality in Saudi Arabia

Advancements in Saudi Arabian legislation that benefited students with disabilities occurred contemporaneously with advancements in gifted education. However, as it stands today, the legislation dealing with special education is separate from that created for gifted education. King Abdul-Aziz and his Companions Foundation for Giftedness and Creativity (2017), which supervises gifted programming for gifted and talented students, has helped greatly in ameliorating gifted programming from where it was in the 1980s (Alamira, 2014). Today, however, the problem lies in the plight of the 2E student. No formal legislation guides educational methodology for meeting the needs of a 2E student; there is legislation for either gifted students or students with disabilities

but not for a student who is both gifted and labeled with a disability. This reality creates great difficulties in advancing programming for 2E students.

Saudi Vision 2030 (2017), which has been charged with the responsibility of ensuring all student types are given the resources to maximize their human potential, is paving the way for the creation of education policies and programming for 2E students in Saudi Arabia. A main objective in this vision is to create an economically and culturally inclusive environment and to produce global-minded graduates (Saudi Vision 2030, 2017). The actions of the Saudi Vision 2030 lend themselves nicely to creating effective and needed programming for Saudi Arabian 2E students (Alrubaian, 2014).

An example of research that has been conducted in Saudi Arabia for gifted students with learning disabilities includes Bakhiet and Essa's (2012) study concerning how to identify gifted students with learning disabilities who attended a program for children with learning disabilities in a Saudi Arabian elementary school. The study showed that 2E students represented 3.3% of the students who were enrolled in the program for children with learning disabilities, which was similar to prevalence levels of 2E students in other countries. Also, the results of the study indicated a relationship between the identification of giftedness or talent for 2E students and the socioeconomic status and education level of families. These researchers found that in families with higher socioeconomic status, a student with disabilities was more likely to have their giftedness identified. Bakhiet and Essa recommended improving the identification process for 2E students because the current identification process for 2E students only allowed the student to be referred to programs for special needs and not to gifted programs. They also recommended improving communication between gifted and

special education teachers and training teachers about the characteristics of gifted students with learning disabilities to avoid overlooking students with disabilities who might also be gifted.

The lack of general knowledge about coexisting gifts and disabilities in Saudi Arabia continues to be an ongoing challenge. For example, Alsamiri (2016) conducted research regarding teachers' perspectives on identifying 2E students in Saudi Arabia. In a study that included 410 teachers, the results showed teachers were unable to identify 2E students due to their lack of knowledge about this issue. The research also showed that "teachers' perspectives reflect the beliefs that overcrowded classrooms prevent teachers from identifying 2E, and that the identification should be undertaken by specialist teachers" (Alsamiri, 2016, p. 5). Most importantly, Alsamiri found 2E students with LD were not a recognized category in the Saudi Arabian education system; therefore, there was no identification process or procedure targeting this group.

Although no formal policy has yet been developed, researchers in Saudi Arabia have completed some initial investigations with students who are twice exceptional. In terms of establishing awareness and making recommendations regarding 2E students, a paper presented to the Regional Scientific Conference for the Gifted by Alttasan, Alhyoti, and Feda (2006) described the experience of the Jeddah Center for Autism with twice exceptionality. This organization, established by the Alfaisalya Womens' Welfare Society, was the first private center in the Arabian Gulf area to support children with autism. Alttasan et al. presented two cases of 2E children who demonstrated autism and giftedness. The recommendation from these authors was to establish a specialized team from academia, to provide for more screening and identification of gifted students with

special needs, and to provide a guidance plan for special education centers in Saudi Arabia to raise awareness about and supporting both the giftedness and disabilities exhibited by 2E students.

In terms of empirical research specifically with 2E students, Attiyah (2017) evaluated the effectiveness of cognitive behavior programs for the development of organizational skills for gifted students with learning disabilities in elementary schools in the North region of Saudi Arabia. The study used an experimental design with 40 students. The results showed differences between students who received the program and students who did not receive the program. The program was effective in developing organizational skills in the 2E students who received it.

Otherwise, few studies have considered various relationships between twice exceptionality and academic variables as well as actions that need to be taken to help teachers and parents support these students. A cross-cultural study by Ali (2014) examined the relationship among twice exceptionality and students' academic self-concept, self-confidence, and creativity. The participants were gifted students with learning disabilities from Egypt and Saudi Arabia between the ages of 9 and 13. The results of this study showed a positive relationship among academic self-concept, self-confidence, and creativity among 2E Egyptian and Saudi students.

Another study clearly highlighted the importance of teachers' roles in identifying 2E students and making appropriate referral decisions. Al-Amiri (2011) presented data that clearly pointed to the need for accurate interpretation of behavior in identifying and referring students for special services of any kind. This researcher found manifestations of advanced development in 2E students were misunderstood and believed to be

psychological disorders rather than giftedness; autism, ADHD, and SLD are commonly diagnosed disabilities in gifted children in Saudi Arabia. Many in Saudi Arabia argue that these disabilities are not psychological disorders but are actually byproducts of 2E students' development potential (Al-Amiri, 2011). Unfortunately, labeling disabilities in Saudi Arabia can still introduce bias to an already difficult task of interpreting students' behaviors and needs objectively and accurately.

Summary

As efforts in special education have advanced, researchers and educational professionals have become aware that students who demonstrate gifts or talents might have co-existing disabilities or challenges that limit their academic and social achievement. These students present a new challenge to educators as they can be difficult to identify and numerous complex issues are involved in their interactions with parents, teachers, and other students. Because special education systems have developed separately for gifted students and students with various disabilities, current systems in most countries have yet to develop an effective process for identifying these students and meeting their needs.

Possibly the most substantial challenge to providing appropriate services to 2E students is their gifts or talents might overshadow difficulties such as a learning disability, ADHD, or an emotional-behavioral disability. This problem is called masking. Researchers, educators, and parents face the challenge of sorting through a vast number of potential combinations of gifts and learning challenges that can present in a child. Most studies indicated that in order to properly identify 2E students and refer them to needed programming, a comprehensive assessment of the student as a whole is critical.

Currently, the United States has provided a legal definition for twice exceptionalism, but inconsistency in policies and practices continues to present difficulties in terms of meeting the needs of 2E students. Saudi Arabia has yet to establish a legal definition for twice exceptionalism but researchers in this country have started to investigate the issue and develop appropriate strategies to help these students. To help further 2E students' education, educators need to increase their knowledge about how to work with 2E students; studies in both the United States and Saudi Arabia indicate a strong need for formal teacher training with respect to twice exceptionalism.

In their efforts to understand 2E students and how teachers interact with these students, numerous researchers have conducted studies about teachers' perceptions of, knowledge about, and attitudes toward 2E students (Alsamiri, 2016; Hoffman, 2014; Jones, 2014; Sexton, 2016). However, the lack of emphasis on the latter indicates a need for further investigation in that area. One of the most significant issues in special education, and especially with respect to 2E students, is the influence of biases that are introduced by the labels assigned to these students.

Studies in the United States have consistently shown that labeling students as being gifted or as having a specific disability influenced the expectations and behaviors of students, teachers, and parents. For example, when a student is labeled as gifted or talented, others might overlook difficulties, assuming gifted children do not need extra support. In contrast, others often assume those with disability labels have limited gifts. Biases that labels can introduce often lead to errors in teachers' referrals of 2E students to gifted programming or to needed support services for learning or other challenges. Further, several other variables could potentially interact with labels to influence teacher

referrals such as a teacher's background or area of expertise. Research in the United States has shown that referrals to special education or to gifted program are sometimes significantly influenced by whether a teacher specializes in gifted programming, general education, or special education. This issue has been complicated all the more by inconsistent findings across studies.

Given the importance of objectivity in identifying the needs of any student, efforts to understand how key variables such as labels, teacher background, demographic variables, or geography interact to determine referral decisions is a critical part of providing an appropriate education to 2E students. Several foundational studies in the United States provided useful data concerning labeling bias in referral decisions (Bianco, 2005; Bianco & Leech, 2010; Hoffman, 2014; Jones, 2014; Sexton, 2016). To establish more consistency and generalizability of findings in these studies, ongoing research must attempt to replicate this research in other settings and internationally.

Although the Saudi Arabian education system has advanced considerably in recent years, the educational system is still behind relative to global standards. Given the current government support for Vision 2030 (2017) with its focus on education development and the maximization of human potential, efforts to support the needs of 2E students are fundamental to the objectives of the country. The Ministry of Education and Saudi Arabian teachers need more formal training on how to work with 2E students (Alamer, 2014). Further research investigating how Saudi teachers' perceptions about 2E students affect their referrals of these students to gifted programming is needed.

CHAPTER III

METHODOLOGY

Purpose of the Study

Bianco and Leech (2010) found that general education, gifted education, and special education teachers differed in their approaches to referring students to gifted programming, especially when the students were labeled with a disability. The purpose of this cross-sectional survey study was to investigate the effects of labeling on general, gifted, and special education teachers' decisions to refer students to gifted programs in Saudi Arabia. This study was a systematic replication of a study conducted by Bianco and Leech who examined the effects of disability labels (LD, ASD, or no label) on referrals of students to gifted programs among three different teacher groups (i.e., general education, special education, and gifted education teachers). Additionally, qualitative inquiry was employed to examine in detail the reasons teachers in these different areas chose to refer or not to refer certain students for gifted programming.

In this chapter, the following are discussed: (a) the research questions, (b) the setting including the participants, (c) measurements, (d) the research design, (e) data collection procedures, and (f) the data analysis plan.

Research Questions and Hypotheses

The following four research questions and their respective hypotheses guided this study:

- Q1 Do referral ratings for gifted programs differ among general education teachers, special education teachers, and gifted education teachers?
- H₁ Teacher type influences the referral ratings for gifted programs. There will be a significant difference in referral ratings among teachers (i.e., general education teachers, special education teachers, and gifted education teachers).
- H₀₁ Teacher type does not influence the referral ratings for gifted programs. There will be no significant difference in referral ratings among teachers (i.e., general education teachers, special education teachers, and gifted education teachers).
- Q2 Do referral ratings for gifted programs differ among teachers who believe that the student has a SLD label, an ASD label, or no exceptional condition?
- H₂ Students' disability (or lack of) labels influence the referral ratings for gifted programs. There will be a significant difference in referral ratings among teachers who believe the student has an autism spectrum disorder label, a specific learning disability label, or no exceptional condition.
- H₀₂ Students' disability (or lack of) labels do not influence the referral ratings for gifted programs. There will be no significant difference in referral ratings among teachers who believe the student has an autism spectrum disorder label, a specific learning disability label, or no exceptional condition.
- Q3 Is there an interaction between labeling condition and teacher certification type?
- H₃ There is an interaction between students' disability (or lack of) labels and teacher types that influences the referral ratings for gifted programs.
- H₀₃ There was no interaction between students' disability (or lack of) labels and teacher types that influences the referral ratings for gifted programs.
- Q4 Why do general, gifted, and special education teachers choose to refer or not refer students with and without disability labels to gifted programming?

Setting

Cultural Context and Teacher Preparation in Saudi Arabia

Saudi Arabia is considered a new country and it was established under this name in 1932. The official language of Saudi Arabia is Arabic and the official religion is Islam; therefore, Arabic and Islam are intrinsically intertwined with Saudi education and other components of Saudi life (Embassy of the Kingdom of Saudi Arabia, n.d.). “Saudi Arabia has a centralized education system, where the Ministry of Education has supreme authority and limited autonomy is given to the schools” (Al Garni, 2012, p. 4). There are 504,738 teachers and 6,005,060 students in 26,248 Saudi Arabian public schools, with an estimate of one teacher for every 12 students (General Authority of Statistics, 2018).

The education system is a big concern for this young country. Attention Saudi Arabia has placed on education is shown in the rapid development from its largely limited educational infrastructure to a massive expansion in said infrastructure. This expansion was possible due to the education sector’s acquiring the largest budget it has ever received from the Saudi Arabia government in 2018. To be precise, about 200 billion SAR (\$53,333 billion) was allocated for public education, higher education, and training (Ministry of Finance, 2018).

There are three main levels for the education system in Saudi Arabia: (a) primary education, which is pre-basic education for children under six years of age and is not mandatory; (b) three levels of general education including elementary school (first through sixth), middle school (seventh through ninth), and high school (10th through 12th); and (c) higher education, which includes undergraduate and graduate studies such as bachelor’s, master’s, and doctoral degrees.

All three levels of general education are mandatory, separated by gender, free for all children, and under the supervision of the Ministry of Education (2015a). While the Arabic language is the main educational language, English is taught starting in the fourth grade. By the end of elementary school, the grades five and six examinations determine whether a student moves forward to middle school or is held back (Ministry of Education, 2015a).

The Department of University within the Ministry of Education (2015a) oversees the stages of university education. In Saudi Arabia, there are approximately 30 government universities and 12 private universities (Ministry of Education, 2015b). Within the educational system, methods for identifying gifted students differ from methods for identifying students with disabilities. According to Al Garni (2012), two programs identify gifted students: (a) the National Program for the Identification and Education of the Gifted, which was established in 1998 by the Ministry of Education; and (b) the King AbdulAziz and His Companions Foundation for Gifted, which was established in 1999. Excellent academic ability is defined as consistently good grades (i.e., students who receive greater than 90% on tests in classes).

In the Saudi Arabian academic system, a gifted student is one who has excellent academic abilities in one or more of his or her school's subjects. The next step is then for the teacher to nominate the student for gifted programming. After this step, the student completes screening testing to determine whether or not they meet the gifted identification criteria. Included in the battery of tests used for identification are the Group IQ test for special abilities, the Torrance Test of Creative Thinking and the Wechsler Intelligence Scale for Children-Revised for intelligence (Al Garni, 2012).

For students with disabilities, identification typically begins early in their lives, depending on the disability and the attitudes and involvement of the parents. A collaborative effort between the Ministry of Health, Ministry of Labor and Social Affairs, and the Ministry of Education was initiated to ensure these children receive the services they need: “However, laws and policies of early identification and intervention services are not mandated in Saudi Arabia” (Aldabas, 2015, p. 1162). Inclusion is considered to be an effective way to educate students with disabilities. In general, at the beginning of each year, the special education teacher visits each classroom and hands out booklets that provide information regarding some disabilities such as LD, ADHD, and ASD and how to differentiate students who need support at a more universal level from students who actually have a disability (Alrubaian, 2014).

Using the recommendation provided by the general education teacher, the special education teacher goes to the student file and studies the students’ profiles regarding health, communication with the parents, and other factors that can affect student achievement. (Alrubaian, 2014, p. 10)

With permission from the parents, the student is given a formal assessment of the student’s disability issue (Alrubaian, 2014).

The Ministry of Education and the Ministry of Civil Services are the main associations that collaborate to hire teachers for the public-school systems (Mullis, Martin, Goh, & Cotter, 2016). Officially, teachers who are hired by the Ministry of Education are given different teacher rights like job security, job performance development, and opportunities to practice teaching abroad. The Ministry also created a Preparing and Training Teachers program in Saudi Arabia that trains teachers for a job in

education. This program qualifies teachers, helps them develop their performance skills, and increases their awareness about the educational environment and different systems (Mullis et al., 2016).

To teach in general education, teachers either have to have a bachelor's degree in education from any national or approved international university or a bachelor's degree in any discipline in addition to a diploma in education from any national or approved international university (Mullis et al., 2016). A diploma in education is a two-year program that prepares teachers for their teaching mission by providing specific courses related to the educational field such as linguistics, teaching methodology and strategies, English literature, educational technology, educational psychology, and developmental psychology. The program requires courses similar to those included in a Bachelor of Education degree, but it is more focused on education and does not include the variety of courses required by the broader bachelor's degree in liberal arts. Teachers also must pass a major and general education proficiency test, a medical examination, and a personality and character interview (Mullis et al., 2016).

To teach special education classes in Saudi Arabia, a future teacher is required to obtain a (four-year) bachelor's degree in special education (Al Garni, 2012). This degree can be completed at any authorized national or approved international university. This requirement is intended to ensure future special education teachers have received the necessary knowledge to be effective in a special education classroom setting while ensuring they can also use their degree to visit and provide special services in general education classroom settings. There are several specific requirements for earning the degree: "33 hours in general education, 51 hours in general special education, 15 hours in

disabilities and 3 hours in giftedness, in addition to 14 hours in two minor areas” (Al Garni, 2012, p. 5). Future teachers are required to complete a 12-hour practicum in a school assigned to them during their last semester (Al Garni, 2012).

Gifted education degree programs are encompassed within the special education degree, similar to customary practices in the United States. To be a gifted education teacher in Saudi Arabia, the degree requirements are quite similar to those of the special education degree; however, there is a special focus on giftedness instead of disability. According to Al Garni (2012), five universities in Saudi Arabia have special education departments that provide degrees in gifted education. This number has increased recently to 30 universities total and more gifted programs have been established such as the University of Jeddah in 2014. General education teachers wishing to specialize in special or gifted education need to obtain a certificate or a diploma with 18 hours of training in their desired areas of study (Al Garni, 2012).

The Ministry of Education also offers opportunities for additional professional development and provides teachers with supervision throughout their careers (Mullis et al., 2016). Also, to help teachers, “the Ministry is launching an electronic gateway for communication within the education sector to contribute to knowledge building, and to assist teachers in publishing educational research” (Mullis et al., 2016, p. 1).

Western Region of Saudi Arabia

This study took place in the western region of Saudi Arabia. The western region of Saudi Arabia represents almost one-third of its land. It is bordered on the west by the Red Sea, on the north by the Tabuk region, on the east by the Najd, and on the south by the Asir Region. The Hejaz is the most populated region in Saudi Arabia. Thirty-five

percent of all Saudis live there. This region includes two main provinces (Makkah and Medina) with many cities such as the Islamic holy cities of Mecca and Medina and the second largest city in the country, Jeddah (see Figure 1).



Figure 1. Map of Saudi Arabia.

There are general Departments of Education for each province: The General Directorate of Education in Makkah and The General Directorate of Education in Medina. These general departments oversee many cities in this area (i.e., Makkah, Medina, Jeddah, Taif, Yanbu, etc.). Two educational departments were contacted for this study—the Directorate of Education in Makkah and the General Directorate of Education in Medina—to help with the recruitment of teacher participants from 1,550 schools in three different cities: Makkah, Medina, and Jeddah because these regions were accessible to the researcher.

Participants

The target population for this study was general, gifted, and special education teachers who were actively teaching in public elementary schools in the western province of Saudi Arabia. The participants included teachers who taught at both male and female schools. The total number of elementary-school teachers (grades one through six) and elementary schools from these three cities is reported in Table 2 (Ministry of Education, 2015b).

Table 2

Number of Schools and Elementary-School Teachers in the Western Region of Saudi Arabia

City	Teachers and Schools	Male	Female	Total
Makkah	Teachers	5,250	5,852	11,102
	# of elementary schools	241	245	486
Medina	Teachers	4,768	5,891	10,659
	# of elementary schools	281	277	558
Jeddah	Teachers	6,354	6,890	13,244
	# of elementary schools	245	261	506
Total		16,372	18,633	35,005

General, special, and gifted education elementary-school teachers working with students in grades one through six who had over one year of teaching experience were included in the initial sample. The sample was then stratified by teacher certification type (i.e., general education, special education, gifted education). To be included in the special education teacher group, participants had to have at least a bachelor's degree in

special education and hold an up-to-date certification in at least one disability area. To be included in the general education teacher group, participants had to hold at least a bachelor's degree in education and an up-to-date certification in elementary education. Finally, to be included in the gifted education teacher group, participants had to hold at least a bachelor's degree in education and a certificate in gifted education. Teachers in all three groups had to be actively teaching and also have taught for at least one year to ensure their familiarity with elementary schools in Saudi Arabia.

Demographic Information

Data for the present study consisted of responses from 187 participants (115 females and 72 males). The participants' ages ranged from 20 to older than 54. The majority of the participants were 40 to 44 years old (32.6%, $n = 61$). More than half of the sample taught grades other than first through sixth (57.2%, $n = 107$) in the role of special education teachers who were responsible for all grades or as gifted education coordinators. The highest level of education reported by most participants was a bachelor's degree (77.5%, $n = 145$) while 26 participants had a master's degree (13.9%). Only one participant had a doctorate and nine participants held a professional degree that prepared teachers to teach (4.8%).

The participants' years of experience varied from between one to five years and 20 or more years. Approximately a quarter of the participants had more than 20 years of experience (26.2% $n = 49$), 19.8% of participants had between 16 and 20 years of experience ($n = 37$), 10.2% of participants had between 11 and 15 years of experience ($n = 19$), 24.1% of participants had between 6 and 10 years of experience ($n = 45$), and 19.8% of participants had between one and five years of experience ($n = 37$). Finally, the

participants were asked about the city where they taught: Makkah, Medina, Jeddah, or other. The option with the most responses was other (39.0%, $n = 73$), followed by Jeddah (31.6%, $n = 59$), Medina (23.5%, $n = 44$), and Makkah (5.9%, $n = 11$). A complete description of participants' demographic characteristics is reported in Table 3.

In terms of demographic information, Table 4 shows that 74.33% of the teachers had special education training and 25.66% of the teachers did not. Next, training that supported students with giftedness and disabilities occurred most frequently after graduation (53.2% of the teachers), while the least frequent kind of training for gifted and disabled students was the advanced diploma in gifted education (4.3% of the teachers).

Table 3

Participants' Demographic Characteristics

Demographic Information	<i>n</i>	%
Gender		
Males	72	38.5
Females	115	61.5
Age Range		
20–24 years old	2	1.1
25–29 years old	28	15.0
30–34 years old	29	15.5
35–39 years old	30	16.0
40–44 years old	61	32.6
45–49 years old	26	13.9
50–54 years old	7	3.7
54 years or older	4	2.1
Grades Taught		
1 st Grade	11	5.9
2 nd Grade	10	5.3
3 rd Grade	15	8.0
4 th Grade	16	8.6
5 th Grade	15	8.0
6 th Grade	13	7.0
Other	107	57.2
Education Level Certification		
Bachelor degree	145	77.5
Master degree	26	13.9
Doctorate degree	1	0.5
Professional degree	9	4.8
Other	6	3.2
Years of Experience		
1–5 years	37	19.8
6–10 years	45	24.1
11–15 years	19	10.2
16–20 years	37	19.8
20 or more years	49	26.2
City		
Makkah	11	5.9
Medina	44	23.5
Jeddah	59	31.6
Other	73	39.0

Table 4

Teachers' Special and Gifted Education Backgrounds

Training		<i>n</i>	%
Special Education training	Yes	139	74.3
	No	48	25.6
What type of training have you received to support students with giftedness and disabilities?	Pre-service teaching, university subjects	9	19.1
	Training courses after graduation	25	53.2
	Advanced diploma in special education	2	4.3
	Advanced diploma in gifted education	2	4.3
	Other	9	19.1

Measurement

The method of measurement used in this study consisted of a self-report survey. The survey was adapted from a previous study conducted in the United States following rigorous procedures for adaptation and translation (see Appendix A). The survey for this study was a translated version of a survey developed and implemented by Bianco and Leech (2010). The first section of the survey consisted of a vignette about a student called A.K. who displayed characteristics associated with gifted children (the term 'gifted' is never used) and the second part consisted of six questions based on the vignette. The story was "developed on the basis of an extensive review of the literature and characteristics described in several gifted education textbooks" (Bianco & Leech, 2010, p. 325). Bianco and Leech also examined the content validity of the vignette by presenting it to experts in the field of gifted education who then agreed unanimously on the validity of the gifted characteristics presented in the vignette.

Because the target population for this study was Saudi Arabian teachers who mainly spoke Arabic, the researcher translated the survey into Arabic. The researcher took the following steps to ensure the quality and validity of the translation from English to Arabic: (a) the researcher translated the survey from English to Arabic, (b) a bilingual faculty member verified the Arabic translation of the entire survey, and (c) the Arabic version of the vignette was reviewed by 10 experts in gifted education who were fluent in both Arabic and English to ensure the Arabic translation accurately depicted characteristics of giftedness as related to Saudi Arabian culture and to ensure the quality of the translation. Although all of the experts approved the survey's content validity, appropriateness, and translation, the last expert gave some suggestions on modifying the survey's phrasing. For example, one of the suggested changes was to modify the student's interests from UFOs and life on the other planets to topics like robots and renewable energy as these topics were more popular in the education system in the country.

In the current study, each participant read the survey, which described a student referred to as 'A.K.' The content of the vignette (which was a part of the survey) changed for each of the three disability conditions. The change to the vignette was whether or not A.K. was labeled as a student who has an LD label, an ASD label, or no label. After reading the vignette, the participants completed a survey with six questions using a 4-point Likert-type scale (1 = *strongly agree*, 2 = *agree*, 3 = *disagree*, and 4 = *strongly disagree*). One of the six questions addressed the willingness of the teachers to refer A.K. for possible placement in gifted programs (see Appendix B).

The primary question in the survey stated, “I would recommend that this student be referred for placement in gifted program.” The remaining five questions served as distracters. For example, one of the distracter questions stated, “I would recommend that this student join one of the after-school science clubs” (see Appendix B). Following these questions, an open-ended question asked the teachers to “Briefly state why you strongly agreed, agreed, disagreed, or strongly disagreed with the statement, ‘I would recommend that this student be referred for placement in our school’s gifted program.’”

The last section of the survey consisted of demographic information. The demographic information was collected for the following variables: (a) age, (b) gender, (c) current teaching position, (d) teaching certifications (general, special, or gifted education), (e) subject areas taught, (f) types of additional training in gifted education, and (g) years of teaching experience (see Appendix C).

Research Design

The researcher employed a cross-sectional survey design to collect the data for this study. Cross-sectional surveys are administered to participants at a single time and can be used to “identify trends in attitudes, opinions, behaviors, or characteristics of a large group of people” (Creswell, 2005, p. 52).

The quantitative component of the research focused on three areas: (a) differences in referral ratings between the three teacher groups, (b) the effects of disability labels or the lack thereof on referral ratings, and (c) the potential interaction of teacher certification type with labels. The primary independent variables were teacher type and label condition. The primary measure used as a dependent variable in the present study was the referral rating for gifted programming the teachers provided for the student in the

assigned scenario. Each participant responded on a scale from 1 to 4 (1 = *strongly agree* to 4 = *strongly disagree*) to indicate the degree to which they concurred with the following statement: “I believe that this student should be referred to placement in the school’s gifted program.” Additionally, the participants’ demographic information such as gender, age range, years of experience, level of education, training, grade-level, and city were collected. The goal of the qualitative component of this research was to examine general, special, and gifted education teachers’ reasoning behind their referral decisions.

As aforementioned, this study was a systematic replication of the Bianco and Leech (2010) study. Replication methodology is critical to scientific research methods. Systematic replication refers to studies wherein the researcher changes one or more aspects of a previous study such as the sample population, setting, independent variable, outcome measure, and so on. Systematic replications serve to explore the generalizability of the findings of the original study, i.e., the current study would determine whether there was also a labeling effect with Saudi elementary school teachers’ referral decisions (Cook, Collins, Cook, & Cook, 2016). Further, systematic replications do not directly assess the validity of a previous study. Failure to reproduce findings does not necessarily cast doubt on the results of the original study because the differences between the studies might explain any discrepancies in findings. For example, different populations might respond differently to the measures and interventions used (Cook et al., 2016).

Correspondence and Data Collection Procedures

In the preliminary stages of planning for this research study, the researcher contacted Dr. Margarita Bianco to obtain her permission to systematically replicate her

study and translate the survey she had developed into Arabic (see Appendix D). After presenting the proposal to the committee and reviewing their suggestions, an Institutional Review Board application was submitted and approved (see Appendix E).

The researcher contacted the Ministry of Education (see Appendix F) via email asking about the process for taking a trip to Saudi Arabia to collect the data and to get permission to recruit elementary school teachers in the western region of Saudi Arabia to participate in this study. The Ministry of Education requested (a) a written letter from the researcher directed to the director of the Center of the Education Policies Research at the Ministry of Education (see Appendices G and Appendix H), (b) that all forms of the surveys be in their final format and preferably accessed via a barcode or electronic link; and (c) to determine the exact sample size of participants in the research and how they would be recruited. The researcher emailed the Ministry of Education with what they requested (see Appendix I). The Ministry of Education approved the study and then emailed the approval letter that consisted of a brief description of the study to the researcher and the three regional Departments of Education. In the email, the Ministry of Education asked the staff members to facilitate the researcher's mission and let them know they should communicate with the researcher in case they needed more information (see Appendix J). The researcher received the approval letter from the Departments of Education, which gave her permission to distribute the surveys to teachers (see Appendices K and L). The researcher then visited and communicated with the Departments of Education and explained how to recruit teachers and asked for a list of teachers' names, ID numbers, and emails or phone numbers. To ensure the privacy of their teachers, the Departments of Education refused to release any information on the

teachers, asking the researcher to text the links of the surveys. The researcher texted the survey links along with a brief introduction (see Appendix M). The Departments of Education then distributed the surveys to the teachers with the following introduction:

Hello, this is a scientific study about your decision as a teacher to refer your students to some different educational programs. Your participation is very important and will contribute significantly to the future of education in the Kingdom. Kindly, what you have to do is complete the survey attached in the link below. It won't take more than five minutes. I welcome any questions and inquiries and thank you for your time.

Along with the survey links and introduction, the researcher gave the Departments of Education a randomized table wherein the teachers in each region for each department were organized by certification. From that list, teachers of the three certification types from each regional group were randomly assigned one of the three labeling conditions (vignettes) using a random numbers table.

The surveys were distributed via Qualtrics via three survey links—one for each condition. The three regional Department of Education directors received emails with a letter explaining the study and a request to facilitate the researcher's mission (see Appendix L) and the link for the survey they needed to complete. A consent form was provided electronically to the participants within the online survey (see Appendix N). The Qualtrics survey opened directly to a consent form to be read and 'signed' by all of the participants before choosing to complete the survey. The consent form explained the purpose of the study and stated the researcher's interest in teachers' recommendations for student educational programming, the instructions for participation, the importance and

value of participating in the study, and how Saudi Arabian teachers and administrative officials would benefit from the study. Also, the informed consent contained contact information for the researcher including a phone number and email address should any questions arise.

The survey was configured such that participants were required to complete the consent form to proceed. If a participant chose to 'agree,' the online system presented the instructions and had them begin the survey. After they finished the survey, the system took them to a demographic data page. Clear and easy-to-follow instructions were included to make the questionnaire easy to complete (see Appendices A, B, and C). The survey took approximately 10 to 15 minutes to complete. The survey was tested in advance by some volunteers to establish a final estimate of completion time. A reminder text was sent to the Departments of Education to remind their teachers who did not respond to the initial survey request after two weeks had passed.

Data Analysis Plan

The collected data were transferred to the Statistical Package for the Social Sciences 23.0 for analysis and processed on a MacBook Air personal laptop. To characterize the participants, descriptive statistics were used, i.e., frequencies and percentages were tabulated for the participants' gender, age, teaching field (i.e., general, special, or gifted education), and their educational background. Years of teaching experience and any training the teachers had completed were shown in terms of means and standard deviations.

Instead of using ANOVA procedures as did Bianco and Leech (2010), the researcher used multinomial logistic regression (MLR) to test for main effects for referral

ratings by labeling condition and teacher type as well as the potential interaction between labeling condition and teacher type. This procedure is appropriate for categorical variables and was deemed appropriate for this study (Agresti, 2007). Furthermore, MLR does not require fulfilling the assumptions of normality, linearity, or homoscedasticity (Starkweather & Moske, 2011).

Determining sample sizes for MLR was somewhat complicated as there have been ongoing discussions regarding the necessary sample size (Agresti, 2007; Long & Freese, 2006; Pedhazur, 1997; Starkweather & Moske, 2011). In general, sample size guidelines for MLR indicated a minimum of 10 cases per independent variable (Agresti, 2007). However, Pedhazur (1997) suggested at least 30 observations per independent variable with at least 200 observations and a limit of 600 observations to ensure the stability of the beta weights. In terms of the 10 observations per independent variable approach, the planned sample size of 180 should have been sufficient but more observations might have provided better power for detecting differences as indicated by Pedhazur.

The teachers' qualitative responses to the question concerning the reasons for their decisions to refer or not to refer students in the different labeling conditions to gifted programming ($n = 137$) were analyzed based on an inductive approach. Both NVivo and manual reviews of the participants' responses to the open-ended question were used to analyze the data until consistent categories were identified and fully explored (Creswell, 2012; Creswell, Plano Clark, Gutmann, & Hanson, 2003; Merriam & Tisdell, 2016). Similar responses were grouped and entered into the NVivo program to create nodes for identifying categories and subcategories and organizing them into potential themes or

subthemes. An output table was generated to provide the frequency of statements for each node (see Appendix O).

In addition to generating results using NVivo, two researchers reviewed the raw data independently and coded the data with respect to the preliminary themes identified by NVivo. Differences in coding decisions were resolved via consensus and by revisiting the NVivo output. Final themes were then organized and labeled. The final categories and subcategories are reviewed in detail in Chapter IV.

CHAPTER IV

RESULTS

The results of the study are presented in this chapter. First, the study design, data entry, and data preparation are reviewed. The descriptive statistics for the study variables are then examined followed by an in-depth look at the assumptions for the quantitative analysis. Next, the results of the statistical analyses are reviewed to address the null and alternative hypotheses regarding the first three research questions. Finally, research question four is addressed with a qualitative analysis of the reasons the teachers reported their referral decisions. Qualitative data were analyzed by using both manual coding and NVivo to support an in-depth understanding of the quantitative results.

Descriptive Statistics

The final sample consisted of three groups of teachers (187 total teachers) representing three different certification types (i.e., general education, gifted education, and special education) who read vignettes with one of the three labels. Table 5 shows the final frequencies for teacher type across the three labeling conditions.

Table 5

Distribution of Teachers by Certification Types Across Label Conditions

	No Label	Autism	Learning Disability	Total
General Education Teachers	47	24	14	85
Special Education Teachers	28	13	18	59
Gifted Education Teachers	24	15	4	43
Total	99	52	36	187

Table 6 contains the number of participants in each teacher group (i.e., general education, special education, gifted education) and the means and standard deviations for each group's referral decision rating (4 = *strongly agree*, 3 = *agree*, 2 = *disagree*, 1 = *strongly disagree*) and referral ratings by disability as well. The researcher attempted to have an equal number of participants in each teacher group; however, general education teachers gave the largest number of responses to the survey as more general education teachers were available than were available for either of the other two teacher groups.

Table 6

Referral Ratings by Label Condition and Teacher Type

Teacher Type	Label Condition	<i>n</i>	Referral Decision to Gifted Program			
			Strongly Agree	Agree	Disagree	Strongly Disagree
General Education <i>M</i> = 3.45 <i>SD</i> = .716	No Label <i>M</i> = 3.51 <i>SD</i> = .69	47	28 (59.6%)	16 (34%)	2 (4.3%)	1 (2.1%)
	Autism <i>M</i> = 3.41 <i>SD</i> = .82	24	13 (54.2%)	8 (33.3%)	2 (8.3%)	1 (4.2%)
	LD <i>M</i> = 3.36 <i>SD</i> = .63	14	6 (42.9%)	7 (50%)	1 (7.1%)	0 (0.0%)
	Total	85	47 (55.3%)	31 (36.5%)	5 (5.9%)	2 (2.4%)
Special Education <i>M</i> = 3.44 <i>SD</i> = .77	No Label <i>M</i> = 3.57 <i>SD</i> = .74	28	19 (67.9%)	7 (25%)	1 (3.6%)	1 (3.6%)
	Autism <i>M</i> = 3.15 <i>SD</i> = .99	13	6 (46.2%)	4 (30.8%)	2 (15.4%)	1 (7.7%)
	LD <i>M</i> = 3.44 <i>SD</i> = .62	18	9 (50%)	8 (44.4%)	1 (5.6%)	0 (0.0%)
	Total	59	34 (57.6%)	19 (32.2%)	4 (6.8%)	2(3.4%)
Gifted Education <i>M</i> = 3.40 <i>SD</i> = .76	No Label <i>M</i> = 3.38 <i>SD</i> = .77	24	13 (54.2%)	7 (29.2%)	4 (16.7%)	0 (0.0%)
	Autism <i>M</i> = 3.30 <i>SD</i> = .79	15	7 (46.7%)	5 (33.3%)	3 (20%)	0 (0.0%)
	LD <i>M</i> = 4.00 <i>SD</i> = .00	4	4 (100%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Total	43	24 (55.8%)	12 (27.9%)	7 (16.3%)	0 (0.0%)

Data Preparation and Entry for the Multinomial Logistic Regression

Multinomial logistic regression analysis was used to test research questions one through three. Data from each of the three label conditions (no label, autism label, and learning disability label) were merged into a single Excel file and a new variable ‘label condition’ was created to merge the separate data files into one file. The data were analyzed using the Statistical Package for the Social Sciences-SPSS (Version 23).

The first independent variable (teacher type) had three levels: general education teacher ($n = 85, 45.5\%$), special education teacher ($n = 59, 31.6\%$), and gifted education teacher ($n = 43, 23\%$). Note it was not possible to have an equal number of participants per group due to the availability of teachers. Most teachers across all three teacher types either strongly agreed ($n = 105, 56.1\%$) or agreed ($n = 62, 33.2\%$) with the recommendation to refer the student in the vignette for gifted programming. A complete description of recommendation ratings by teacher type is presented in Table 7.

Table 7

Gifted Program Ratings by Teacher Type

Teacher Type	Recommendation for Gifted Program			
	Strongly Agree	Agree	Disagree	Strongly Disagree
General Education Teacher	47	31	5	2
Special Education Teacher	34	19	4	2
Gifted Education Teacher	24	12	7	0
Total	105	62	16	4

The second independent variable (label condition) had three levels: no label condition, autism, and learning disability. Across all three label conditions, most of the teachers either strongly agreed (56.1%, $n = 105$) or agreed (33.2%, $n = 62$) with the recommendation to refer the hypothesized student for gifted programming ($n = 167$, 89.3%). Fewer participants disagreed (8.6%, $n = 16$) and strongly disagreed (2.1%, $n = 4$) with recommending the student for referral to a gifted program. A complete description of recommendation ratings by label condition is presented in Table 8.

Table 8

Gifted Program Ratings by Label Condition

Label Condition	Recommendation for Gifted Program			
	Strongly Agree	Agree	Disagree	Strongly Disagree
No Label	60	30	7	2
Autism Label	26	17	7	2
Learning Disability Label	19	15	2	0
Total	105	62	16	4

Statistical Assumptions of Multinomial Logistic Regression

Before analyzing the research questions, statistical assumptions associated with MLR were assessed. The first three assumptions were met by the design of the study without the need for statistical tests. Assumptions four, five, and six were assessed with statistical tests and met (Agresti, 2007; Bayaga, 2010; Osborne, 2014).

The first assumption stated the dependent variable must be a nominal variable. However, ordinal variables might be treated as nominal variables. The present study treated the dependent variable as a nominal variable (Osborne, 2014). The second assumption stated that at least one continuous, ordinal, and/or nominal independent variable must be present. For this study, the independent variables, teacher type (general, special, and gifted education) and label condition (no label, autism, and learning disability) were nominal with three categories each. The third assumption stated that the study must have independence of observations (i.e., each teacher group is independent from the other and the groups are not related). The study's dependent variable categories should be exhaustive as well as mutually exclusive. This means the dependent variable could not have participants with scores in two categories (i.e., you cannot both "agree" and "disagree" with the referral).

The fourth statistical assumption associated with MLR stated the independent variables must not have any multicollinearity (which occurs when there is a high correlation between the independent variables). The degree of collinearity among independent variables was measured by the variance inflation factor. A value of 1 or 2 showed essentially no collinearity, whereas values of 20 or higher showed extreme collinearity (O'Brien, 2007). The variance inflation factor value for both independent variables was 1.0, indicating no serious problems with respect to multicollinearity (see Table 9).

Table 9

Collinearity Diagnostics

		Coefficients					Collinearity Statistics	
		Unstandardized Coefficients		Standardized Coefficients				
Model		B	Std. Err	Beta	<i>t</i>	<i>p</i>	Tolerance	VIF
1	(Constant)	1.436	.176		8.169	.000		
	Teacher Type	.024	.068	.026	.347	.729	1.000	1.000
	Label Condition	.053	.069	.057	.770	.442	1.000	1.000

VIF = variance inflation factor

The fifth assumption of MLR was if there was a relationship between any continuous independent variable(s) and the logit transformation of the dependent variable, this relationship must be linear in nature. However, no continuous independent variables were included in the present study. Finally, the sixth statistical assumption to address was the absence of outliers. To ensure all of the outliers were removed for this study, the data were cleaned via removing unanswered surveys as well as surveys missing greater than or equal to 25% of the answers.

Fit of Model

Because none of the statistical assumptions were violated, a 3 (teacher type) \times 3 (label condition) MLR analysis was conducted to analyze the first three research questions. The MLR model's ability to fit the surveyed data was evaluated using two methods: (a) goodness-of-fit tests and (b) a likelihood-ratio test. In general, both test statistics were designed to measure the ineffectiveness of a fit. Therefore, larger *p* values

indicate better fit with $p > 0.05$ used as the threshold for statistical significance (Bayaga, 2010; Osborne, 2014). Table 10 shows the results of the Pearson and deviance goodness-of-fit tests. Overall, both the Pearson test, $\chi^2(9) = 4.496$, $p = .876$, and deviance test, $\chi^2(9) = 5.737$, $p = 0.766$, indicated the model was a good fit for the observed data.

Table 10

Goodness-of-Fit Tests

	Chi-square	df	p
Pearson	4.496	9	0.876
Deviance	5.737	9	0.766

†Link function is the logit function

Using the second method, a likelihood-ratio test was run to evaluate the effectiveness of the MLR model at predicting the dependent variable compared with an intercept-only model. The intercept only model did not control for the independent predictor variables and just fit an intercept to provide values for the dependent variable. The MLR (or final model) should show an improvement compared with the intercept-only model by including the predictor variables and maximizing the log likelihood of the outcome. Table 11 shows the resulting comparison. In this case, the chi-square value, $\chi^2(15) = 14.143$, $p = .515$, based on the $-2 \log$ likelihood (LL) model fit statistic indicated no significant difference between the two models, $-2LL = 59.364$ and $-2LL = 73.507$, for the MLR and intercept-only models, respectively, $p = .515$. In other words, although the full model using both teacher job type and student label condition as independent variables (and their interaction) fit the data well, the intercept model was almost equally

capable of predicting the referral decisions. This might suggest the measures used might not have accurately reflected the mechanisms that determined the referral rating (or the teachers' decision process).

Table 11

Multinomial Logistic Regression Model Fit

Model	-2 Log Likelihood	Chi-square	df	p
Intercept Only	73.507			
Final	59.364	14.143	15	.515

Hypothesis Testing and Interpretation

Research Question One

Q1 Do referral ratings for gifted programs differ among the three teacher types?

This research question investigated the following alternative and null hypotheses:

H₁ Teacher type influences the referral ratings for gifted programs. There will be a significant difference in referral ratings among teachers (i.e., general education teachers, special education teachers, and gifted education teachers).

H₀₁ Teacher type does not influence the referral ratings for gifted programs. There will be no significant difference in referral ratings among teachers (i.e., general education teachers, special education teachers, and gifted education teachers).

Based on the likelihood ratio test, no statistically significant differences were found in the ratings of referrals for gifted programs based on teacher type, $-2LL = 64.69$, $\chi^2(6) = 5.326$, $p = .503$. General education, special education, and gifted teachers were

equally as likely to strongly agree, agree, disagree, and/or strongly disagree on gifted referrals based on the vignette.

Teachers' specific type (general education, special education, or gifted education) did not significantly contribute to the comparison of strongly agree and strongly disagree, agree and strongly disagree, or disagree and strongly disagree. In other words, the teachers were no more or less likely to strongly agree or disagree compared to strongly disagree with the gifted referral based on their type (all p -values $> .05$).

Therefore, the null hypothesis associated with research question one—teacher type did not influence the referral ratings for gifted programs—was retained. Based on the present study, no significant differences were found in referral ratings among the three types of teachers (see Table 12).

Table 12

Likelihood Ratio Test for Teacher Type and Label Condition

	-2 LL	Chi-square	df	p
Teacher Type	64.69	5.326	6	.503
Label Condition	66.255	6.891	6	.331

Research Question Two

Q2 Do referral ratings for gifted programs differ among teachers who believe that students have or do not have a disability?

This research question investigated the following alternative and null hypotheses:

H₁ Students' disability (or lack of) labels influence the referral ratings for gifted programs. There will be a significant difference in referral ratings among teachers who believe the student has an autism spectrum disorder label, a specific learning disability label, or no exceptional condition.

H₀₁ Students' disability (or lack of) labels do not influence the referral ratings for gifted programs. There will be no significant difference in referral ratings among teachers who believe the student has an autism spectrum disorder label, a specific learning disability label, or no exceptional condition.

Based on the likelihood ratio test, no statistically significant difference was found in the ratings of referrals for gifted programs based on the teachers' experimental label condition, $-2LL = 66.255$, $\chi^2(6) = 6.891$, $p = .331$. There was no difference in ratings of referrals whether teachers thought the student in the vignette had a no label condition, an autism label, or a learning disability label.

However, the label condition variable did significantly contribute to the model that measured gifted referral ratings. When a no label condition was present, there was a significant difference for those who strongly agreed with a gifted referral compared with those who strongly disagreed with a gifted referral, $p < .001$. In other words, when the teachers read vignettes with no disability label, they were more likely to strongly agree with a gifted program referral than to strongly disagree (odds ratio = 4.561). Additionally and interestingly, when there was an autism or learning disability label, there was a significant difference between those who strongly disagreed with a gifted program referral and those who strongly agreed with a gifted program referral, $p < .001$. In other words, when teachers read an autism or learning disability label, they were more likely to strongly agree with a gifted program referral than to strongly disagree (odds ratio = 1.735).

Furthermore, when no label condition was present, there was a significant difference between those who agreed with a gifted referral and those who strongly disagreed with a gifted referral, $p < .001$. When the teachers read vignettes with no label

condition, they were more likely to agree with a gifted program referral than to strongly disagree (odds ratio = 1.149). When no label condition was present, there was also a significant difference between those who disagreed with a gifted referral and those who strongly disagreed with a gifted referral, $p < .001$. In other words, when the teachers read vignettes with no label condition, they were more likely to disagree with a gifted program referral than to strongly disagree (odds ratio = 4.622).

When an autism or learning disability label was present, there was a significant difference between those who agreed with a gifted referral and those who strongly disagreed with a gifted referral, $p < .001$. When the teachers read an autism or learning disability label, they were more likely to agree with a gifted program referral than to strongly disagree (odds ratio = 9.149). Additionally, when there was an autism or learning disability label, there was a significant difference between those who disagreed with a gifted referral and those who strongly disagreed with a gifted referral, $p < .001$. When the teachers read an autism or learning disability label, they were more likely to disagree with a gifted program referral than to strongly disagree (odds ratio = 1.381; see Table 13).

Table 13

Parameter, Odds Ratio, and Significance Values by Label Condition

Label Condition	<i>B</i>	Odds Ratio	<i>p</i>
Autism or Learning Disability			
Strongly Agree	-17.87	1.735	< .001
Agree	-18.51	9.149	< .001
Disagree	-18.10	1.381	< .001
No Disability			
Strongly Agree	-16.90	4.561	< .001
Agreed	-18.28	1.149	< .001
Disagree	-19.19	4.622	<.001

*Note all comparisons were with the *Strongly Disagree* category.

Research Question Three

Q3 Is there an interaction between disability labeled conditions and teacher type?

This research question investigated the following alternative and null hypotheses:

H₃ There is an interaction between students' disability (or lack of) labels and teacher types that influences the referral ratings for gifted programs.

H₀₃ There was no interaction between students' disability (or lack of) labels and teacher types that influences the referral ratings for gifted programs.

Based on the likelihood ratio test, there were no statistically significant interactions between teacher type and label condition, $-2LL = 61.236$, $\chi^2(3) = 1.872$, $p = .599$ (see Table 14).

Table 14

Multinomial Regression Interaction Results

	-2 Log Likelihood	Chi-square	df	p
Type of Teacher × Label Condition Interaction	61.236	1.872	3	.599

Furthermore, there were no significant interactions among any of the comparison groups (all p -values $> .05$). Across all of the teacher types, the participants were more likely to strongly agree or agree with a gifted programming referral regardless of whether the student had a label that mentioned any type of disability or not (see Figure 2).

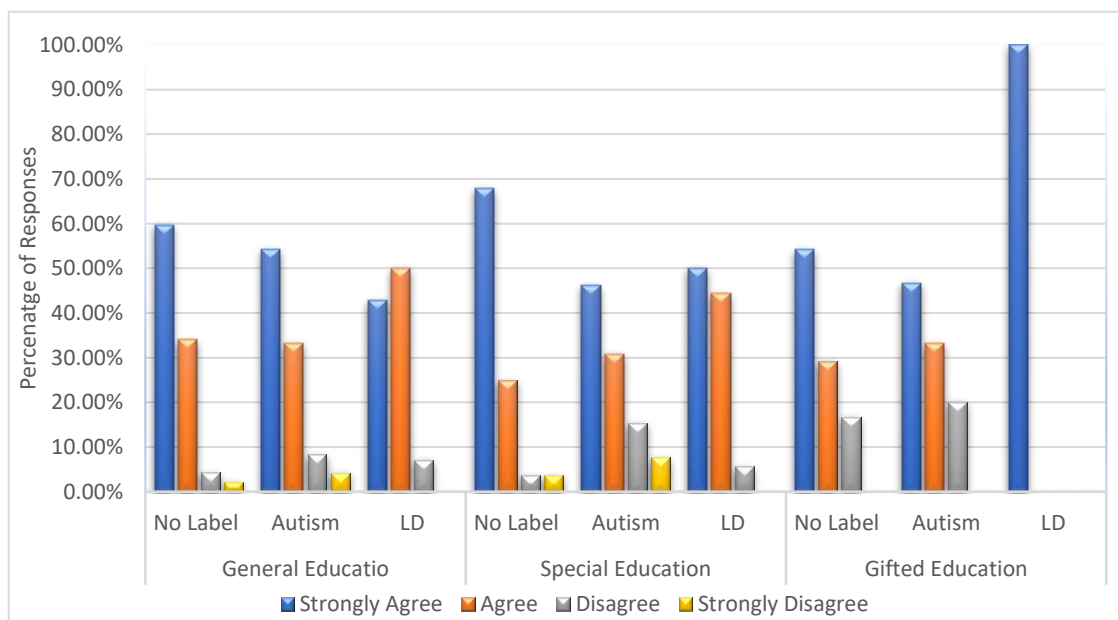


Figure 2. Percentage of responses for each rating category for gifted programs by teacher type and labeling condition.

Research Question Four

- Q4 Why do general, special, and gifted education teachers choose to refer or not refer students with and without disability labels to gifted programming?

The teachers' qualitative responses provided further insight into their decisions to refer or not to refer students in the different labeling conditions to gifted programming.

A total of 137 teachers (73% response rate) provided reasons for their referral decisions.

Of these, 44% of the responses were from general education teachers, 38% were from special education teachers, and 18% were from gifted education teachers. These proportions reflected those in the total sample.

Overall, with respect to the labeling condition, 27% of the responses were for students with an LD label, 37% were for students with an autism label, and 36% were for students with no label, again showing a distribution similar to the total sample. Table 15 shows the distribution of responses with respect to teacher type and labeling condition for the participants who provided a reason for their referral decision.

Table 15

Distribution of Teacher Types by Label Conditions for Fourth Research Question and Response Rates

	LD <i>n</i> (%)	ASD <i>n</i> (%)	None <i>n</i> (%)	Total <i>n</i> (%)	Response Rates <i>n</i> (%)
General Ed.	14 (10)	24 (18)	22 (16)	60 (44)	60/85 (71)
Special Ed.	19 (14)	13 (10)	20 (15)	52 (38)	52/59 (88)
Gifted Ed.	4 (3)	14 (10)	7 (5)	25 (18)	25/43 (58)
Total	37 (27)	51 (37)	49 (36)	137 (100)	137/187 (73)

Note. LD = Learning Disability, ASD = Autism Spectrum Disorder

The reasoning behind the teachers' referral decisions revealed the following three themes: (a) the student showed gifted traits, (b) the student showed talents that could be cultivated with extra support, and (c) student does not fit definition of gifted. Each theme is discussed with respect to the teacher types and labeling conditions.

Theme 1: The student showed gifted traits. In their rationales for their referral decisions, approximately 57% of the teachers emphasized that the student showed gifted characteristics. A general education teacher stated, "The student displays many characteristics of a gifted personality, so he needs care that is offered to the gifted and talented." A gifted education teacher commented on the autism vignette, "He obviously has gifted characteristics. For example, he has a vast imagination; he is a perfectionist; he is also gifted in persuading others to see his point of view as well as debating his opinions. Finally, he believes in himself." Other teachers were focused more on the cognitive abilities of the student. They used words like "intelligence" and "high achiever." One special education teacher shared, "The student has individual abilities different from other peers." Also, a gifted education teacher stated, "The student has gifted characteristics and excels more than his peers."

Furthermore, the teachers did not just base their referral decisions on positive traits of giftedness. Some shared traits that could be considered negative in justifying why they chose to refer a student for gifted programming. For example, one general education teacher noted she referred the student with learning disability label for gifted programming because of "poor socialization, and frequent boredom [which] are characteristics of giftedness." Other teachers recognized that giftedness could show up even when a student was labeled with a disability. One special education teacher shared,

“Although the student has learning difficulties, his active participation in classroom activities indicated his giftedness.” Such statements indicated teachers had an awareness of twice exceptionality.

These responses were well distributed across the three teacher types. Of the 78 comments, approximately 39%, 45%, and 17% were from general, special, and gifted education teachers, respectively. Referrals based on gifted characteristics were also well distributed among the different labeling conditions. Of the 78 referrals based on gifted characteristics, 26% were for students with LD, 26% were for students with autism, and 49% were for students with no label. In other words, approximately 51% of the referrals that referenced gifted traits were for students with a disability (i.e., autism and LD) and 49% were for students without a disability label (see Table 16). Similar to the quantitative findings, a disability label did not appear to impact the majority of educators’ gifted programming referrals. Most of the general, special, and gifted educators still referenced gifted characteristics when rationalizing their referral decisions despite the student being labeled as having a learning disability or autism. One subtheme emerged: special abilities in STEM.

Table 16

Theme 1: The Student Showed Gifted Traits

	Student Shows Gifted Traits			
	<i>n</i> = 78 (57%)			
	General Ed.	Special Ed.	Gifted Ed.	Total
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
LD	4 (5)	13 (16)	3 (4)	20 (26)
ASD	9 (12)	6 (8)	5 (6)	20 (26)
None	17 (22)	16 (21)	5 (6)	38 (48)
Total	30 (39)	35 (45)	13 (16)	78 (100)

Note. Values are expressed as a percentage of the total number of comments within the theme. LD = Learning Disability, ASD = Autism Spectrum Disorder.

Several responses stressed that a referral decision to gifted programming was made because of a student's special abilities in STEM-related areas of study. Twenty (15%) of the teachers who responded to the qualitative question commented specifically on the student's interest or abilities in science, mathematics, robotics, or technology. For example, a general education teacher stated, "He is industrious, likes a challenge, and is determined. He hates routine and instead loves mixing things up. He also likes technology and robotics." A special education teacher shared she referred the student with LD to gifted programming "because of his passion for knowledge acquisition and robotics." Another general education teacher similarly stated, "The child possesses high skills in robotics and technology in general."

It was notable that comments specific to STEM skills were evenly shared between general education teachers (45%) and special education teachers (50%) with only one gifted education teacher mentioning skills specific to STEM areas (see Appendix O for

raw data). With respect to student's labels, 25% of these comments were for students with LD, 25% were for students with autism, and 50% were for students with no label. Interestingly, general and special education teachers made a greater number of specific references to STEM-related skills than did gifted education teachers, suggesting a possible tendency on their part to assume gifted programs emphasized such skills.

Theme 2: Talents of the student could be cultivated with extra support. A total of 35 (26%) of the teachers indicated extra services outside of the normal classroom setting were needed to improve the talents and abilities of the student (see Table 17). Of these responses, 31%, 46%, and 23% were from general, special, and gifted education teachers, respectively. Again, the responses were reasonably distributed among the teacher types considering the unequal sample sizes.

Table 17

Theme 2: Student Needs Development

	Student Needs Development			
	<i>n</i> = 35 (25.54%)			
	General Ed.	Special Ed.	Gifted Ed.	Total
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
LD	1 (3)	5 (14)	1 (3)	7 (20)
ASD	5 (14)	6 (18)	5 (14)	16 (46)
None	5 (14)	5 (14)	2 (6)	12 (34)
Total	11 (31)	16 (46)	8 (23)	35 (100)

Note. Values are expressed as a percentage of the total number of comments within the theme. LD = Learning Disability, ASD = Autism Spectrum Disorder.

Most of the responses were generalized statements that indicated the student had “talents” or “strengths” that could be developed in the gifted program. For example, a

special education teacher responded that extra services were needed “to develop the student, where it was noted that he excelled” and a general education teacher said the student should be referred to gifted programming “to develop his talent.” The responses suggested the teachers believed in the benefits offered in gifted programming and they clearly recognized gifted characteristics.

Within the broader theme of opportunities to cultivate the student’s skills with extra services, most of the responses mentioned specialized support that would be provided in the gifted program and other teachers mentioned services (outside of the school system) that could benefit the student in addition to gifted programming. For example, a special education teacher expressed, “The student has individual abilities different from other peers and therefore needs a gifted education teacher to help develop and improve those abilities” in response to a student with LD. A general education teacher stated a student in the no label condition “has talent that needs sharpening and training by specialists” for a student with no label. One subtheme emerged: extra support is needed to develop the student’s potential.

Many of the teachers believed gifted programming was needed to develop the strengths and abilities the student demonstrated. Of a total of 39 strengths-related rationales, approximately 36%, 44%, and 20% were from general, special, and gifted education teachers, respectively. This was likely more representative of the sample sizes than of teacher type.

Within the general comments about the need for gifted programming to cultivate students’ strengths, some of the participants mentioned the role gifted education teachers played in such programs. For example, a special education teacher indicated that “in the

gifted program, the teachers work hard to help students excel, and they have the tools to make a skilled student.” A gifted education teacher stated that “gifted programs can foster his talents in a professional manner.” It is important to consider that many of the rationales were generalized, indicating the teachers often assumed the gifted program could meet the student’s needs but they did not specify how. The rationale from a special education teacher served to illustrate this point: “The child is intelligent and has a gift that needs support for a greater chance to improve their abilities.”

For students with no label, the teachers showed concern for the student’s need for challenge or generalized skill improvements they believed could be met within the gifted program. For example, a general education teacher shared,

Keeping him in the classroom may cause a decline in his academic level, or could be the beginning of him harassing his teacher and classmates, as what is given in the class doesn’t challenge his abilities (which causes him to feel bored, and thus start to bother others).

A special education teacher said, “The student needs certain teaching methods and mentoring to develop all his strengths.” Similarly, a general education shared that the student “has talent that needs sharpening and training by specialists.” One of the gifted education teachers shared, “He is gifted, and these talents need nurturing so that they develop.” The responses frequently reflected the teachers’ beliefs that students would receive the special attention they needed in the gifted program. For example, a general education teacher stated a particular student should be referred to the gifted program “because it seems that this student is highly skilled, and needs attention, refinement, and care.”

Teachers also clearly noted strengths in the students with autism labels. All three teacher types (44%, 31%, and 25% from general, special, and gifted education teachers, respectively) noted gifted characteristics or strengths in students with autism labels that could be developed through gifted programming. A general education teacher shared the student with the autism label needs gifted programming “because he is gifted, and he needs to discover his talents and develop and improve them.” Similarly, a gifted education teacher stated she referred the student with the autism label “to the gifted program because he is a gifted student and we need to develop his skills.” A special education teacher further rationalized her referral for the student with the autism label by stating he needed gifted programming because of “his elevated interest in science and high abilities in other areas.” Further, some of the gifted education teachers commented specifically on programs with gifted students with disabilities that helped them develop their strengths. One gifted education teacher stated, “There is a varied program for his condition (giftedness with autism)” and another stated, “There is a program for special talents” for twice-exceptional children.

Interestingly but still important to note, a few comments focused on extra support needed, through the gifted program and other related services, to address students’ learning deficits; students in all three labeling conditions were represented. Although all three types of teachers were represented in these comments, the special education teachers contributed most of the comments (45%). General and gifted education teachers each contributed 36% and 18% of the comments, respectively. It is important to highlight that approximately 50% of the deficit-related comments concerned the student with the autism label.

For the student with the autism label, the responses were not only more frequent but also more specific compared with the other rationales provided for extra support services. For the student with the autism label, teachers mentioned the social and psychological needs of the child in addition to his cognitive needs. For example, a gifted education teacher stated the child was referred to the gifted program “to increase his self-confidence and to improve his skills” and a general education teacher shared that the student needed to be in the gifted program “because when he is included with like-minded students, who perhaps share similar interests, he will develop/improve his talents, and learn how to better work with the team.” Teachers who made these comments thought placement in the gifted program could help address the social skills of the student with the autism label while also developing his talents.

Another specific response was offered by a special education teacher about the student with autism label: “The student has talents and those must be developed. At the same time, we should not neglect his social issues, and we must help him improve his ability to adapt to situations.” A gifted education teacher mentioned that extra support services, in addition to the gifted program, were needed to help the student with the LD label: “His behavioral problems and poor communication with peers should be solved with the help of a guidance counselor.”

In summary, the rationales based on opportunities to cultivate talents of the student were fairly well distributed with respect to teacher type, supporting the quantitative analysis. All three types of teachers demonstrated a strong interest in providing support to develop the potential of students with different labeling conditions. Most of their referral rationales focused on how the gifted program could build on the

strengths the student demonstrated. Some of the teachers mentioned how the gifted program and other support services were needed to address both the talents and learning and social deficits of students in disability label conditions.

Specific referral rationales for the student with the autism label suggested the label alerted the teacher to more of the psychosocial areas for concern present in the vignette. This was especially notable given the teachers who received the vignette with an LD label or without a disability less frequently mentioned services needed to address the student's psychosocial needs. However, most of teachers, despite labeling condition, did refer the student to gifted programming so it would be important not to overstate these findings.

Theme 3: Student does not fit definition of gifted. Despite an overwhelming tendency to refer the student to gifted programming, 10.7% of the total sample of 187 participants chose to deny a referral. Note that only 137 respondents gave a reason for their referral rating, explaining the differences in the reported percentages. Eleven (8%) of the teachers who provided a rationale for their rating chose not to refer the student to gifted programming. Considering the relative sample sizes, the comments were fairly well distributed among the teacher types (46%, 27%, and 27% for general, special, and gifted education teachers, respectively). Notably, 73% of the nonreferrals were for students with an autism label; only two students with no label (18%) and one student with an LD (9%) label were not referred (see Table 18).

Table 18

Theme 3: Student Does Not Fit Definition for Giftedness

	Student Does Not Fit Definition for Giftedness			
	<i>n</i> = 11 (8%)			
	General Ed.	Special Ed.	Gifted Ed.	Total
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
LD	0 (0)	1 (9)	0 (0)	1 (9)
ASD	4 (37)	2 (18)	2 (18)	8 (73)
None	1 (9)	0 (0)	1 (9)	2 (18)
Total	5 (46)	3 (27)	3 (27)	11 (100)

Note. Values are expressed as a percentage of the total number of comments within the theme. LD = Learning Disability, ASD = Autism Spectrum Disorder.

Teachers who did not refer students for gifted programming often mentioned potential deficits in STEM-related skills. By their definition, succeeding or benefiting from gifted programming would require STEM-related skills the students did not appear to have. As noted above, skills or interest in STEM-related areas were frequently noted as a reason to agree with a referral. The same skill sets emerged among reasons to deny a referral. For example, one special education teacher reported “lack of proficiency of mathematics” as the reason for disagreeing with a referral for a student with autism and a general education teacher indicated they disagreed with referring a student with LD “because he lacks a lot of scientific thinking and concentration skills.”

Beyond specific cognitive skills, some teachers indicated the child simply lacked gifted characteristics or socioemotional issues might interfere with the student’s ability to benefit from gifted programming. For a student with no label, a gifted education indicated “the student is not gifted, but is active, and he believes that he is always right,

and what he needs is to be involved with the community and with his peers” and a general education teacher indicated only “not gifted” for a student with autism. For a student with LD, a special education teacher noted, “I didn’t refer him to gifted programming because his personality type does not work well with supervision.”

As noted above, disability labels emerged as a notable factor in the rationales for disagreeing with a referral as students with autism were disproportionately represented as being unsuitable for the gifted program. One general and one gifted education teacher specifically stated autism was the reason for disagreeing with a referral but none of the teachers indicated LD warranted a nonreferral. In terms of socioemotional issues, a general education teacher indicated they disagreed with a referral for a student with autism “because the student does not accept any guidance to develop his skills, and he makes his decisions individually.” Although 8 of 11 rationales for not referring the student to gifted programming were for the student with the autism label, it was important to note that only two teachers specifically gave the autism label as their reason for not referring the student. Table 19 provides frequencies and percentages of categorized referral decision reasons for the student.

Table 19

Categorized Referral Decision Reasons for the Student

#	Theme	Subtheme	Examples of Quotes	Count	%
1	The student showed gifted traits		“The student displays many characteristics of a gifted personality, so he needs care that is offered to the gifted and talented” (GN Ed) “Because he shares the characteristics of other gifted students” (GT Ed) “He has the characteristics and traits of a gifted student” (SP Ed) “M.A. is more intelligent than his peers” (GN Ed)	78	57
1a		Special abilities in STEM	“because of his skills in programming and robotics” (GN Ed) “Because of his interest in science, reading and research should be used by such programs” (GT Ed)		
2	Talents of the student could be cultivated with extra support		“referred him to the gifted program to ensure that he receives specialized attention and care, and to develop his skills and abilities” (GT Ed) “The student is unique, especially in activities that play to his skills, and those activities are the basics of the gifted program” (GN Ed) “He needs an individual, intensive visit to the resources room to assist with his academic activities” (SP Ed)	35	26
2a		Extra support is needed to develop the students’ potential	“The student is hardworking, but he needs the skills in working with group and following up, and leaving individual work” (GN Ed)		
3	Student does not fit definition of gifted		“Because of the autism” (GN Ed) “Having one side of gifted trait does not mean he is a gifted student” (GN Ed) “I think he will not pass the test (Giftedness)” (GT Ed) “Because he likes to work with his hands more than he enjoys using high-level thinking skills” (SP Ed)	11	8

Note. GN Ed = General education teacher, SP Ed = Special education teacher, GT Ed = Gifted education teacher,

Summary

Overall, the teachers who participated in this study consistently referred the hypothesized student to gifted programming. The results of the quantitative analysis showed no effect for teacher type or labeling condition. The MLR procedure indicated that general education, special education, and gifted education teachers were equally likely to strongly agree or agree with referring the hypothesized student to gifted

programming. Similarly, there was no significant effect for labeling condition such that the students were equally likely to receive a referral to gifted programming regardless of whether they had an LD or autism label. There was an interaction between labeling condition and the numerical ratings such that teachers were more likely to strongly agree or agree with a rating than to strongly disagree with a rating regardless of labels.

The qualitative analysis for research question four generally supported the results of the statistical analysis. The teachers recognized gifted characteristics and referred students to gifted programming, stating similar reasons regardless of teacher type and labeling condition. Although students with autism received more disagree and strongly disagree ratings ($n = 5$ and 4 , respectively), within the total sample, the teachers were more likely to strongly agree or agree with a referral than to strongly disagree so the overall effect was nonsignificant. Taken together, the results of this study showed all three types of teachers recognized gifted characteristics and were supportive of gifted programming services for students whether or not they were labeled with a disability.

Also, the teachers' reasons for referral indicated they were aware of co-occurring giftedness and disability (twice exceptional) and did not allow it to bias their referral decision. The results concerning students with an autism label suggested these students received more scrutiny on the part of some of the teachers but supporting strengths were more often emphasized than addressing remedial needs. Some of the teachers were aware of special programs for gifted students with autism and indicated this with a positive endorsement. All three types of teachers made specific comments about a student's strengths or difficulties that would benefit from the gifted program, indicating

limited tendency to place more focus on either disabilities or remedial needs. The implications of these results are examined in detail in Chapter V..

CHAPTER V

DISCUSSION

The issue of labeling students as gifted or as having a disability has received significant attention in educational research literature (Bianco, 2005; Bianco & Leech, 2010; Hoffman, 2014; Jones, 2014; Lalvani, 2015; Matthews et al., 2014; Moon, 2009; Nichols, 2015; Sexton, 2016; Shifrer, 2013). Labeling a child with either giftedness or a disability is important “for classification purposes and delivery of services” (Matthews et al., 2014, p. 372). However, too much emphasis on labels might have adverse effects on the child when adults fail to see beyond labels to the whole child, (Matthews et al., 2014). Research has demonstrated mixed results regarding the advantages and disadvantages of labeling students as gifted and/or having a disability (Alkhunaini, 2013; Allday et al., 2011; Bianco, 2005; Bianco & Leech, 2010; Foster et al., 1976; Nichols, 2015; Ohan et al., 2011; Sexton, 2016). The purpose of the current study was to provide additional research on this topic through systematically replicating Bianco and Leech’s (2010) research. More specifically, the current study examined the influence of student disability labels (LD, ASD, and no label) and teacher type (general, gifted, or special education teaching) on Saudi Arabian teachers’ decisions to refer a student with 2E characteristics to gifted programming.

The following four research questions guided the study:

- Q1 Do referral ratings for gifted programs differ among general education teachers, special education teachers, and gifted education teachers?

- Q2 Do referral ratings for gifted programs differ among teachers who believe that the student has a learning disability label, an autism spectrum disorder label, or no exceptional condition?
- Q3 Is there an interaction between labeling condition and teacher certification type?
- Q4 Why do general, special, and gifted education teachers choose to refer, or not refer, students with, or without, disability labels to gifted programming?

Many studies in the United States have indicated that teachers' assessment of students with disability labels is often biased (Bianco, 2005; Bianco & Leech, 2010; Hoffman, 2014; Jones, 2014; Nichols, 2015; Sexton, 2016). Further, Western studies have demonstrated the label of 2E introduces additional challenges for teachers, general education, and special education teachers in particular, who are often unformed regarding how to identify and serve these students. Interestingly, research in Saudi Arabia on teacher bias and twice-exceptionality tends to be more mixed as some studies have shown no effect for teacher type with regard to gifted programming referrals for 2E students and others have demonstrated a significant effect (Alkhunaini, 2013; Alsamiri, 2019; Alsamiri & Aljohani, 2019). The current study aligned with the findings of Alkhunaini (2013) and Hoffman (2014) and demonstrated no effect for teacher type with respect to gifted programming referrals for 2E students in Saudi Arabia. Qualitative findings from this study provided additional insight into teachers' referral decisions. A description of the results as they related to other research on this topic is discussed in this chapter, followed by implications for practices, limitations, and recommendations for future research.

Influence of Labels on Teachers’ Perceptions of Students

Previous research found both positive and negative labels could create bias in the perceptions, expectations, and decisions of parents, teachers, psychologists, and students (Babad et al., 1982; Gates, 2010; Hoffman, 2014; Lalvani, 2015; Matthews et al., 2014; Moon, 2009; Rosenthal & Jacobson, 1968; Shifrer, 2013). For example, Matthews et al. (2014) found some parents avoided referring to their children as “gifted” because of possible negative judgement by others. Other studies indicated teachers might overlook the needs of students with gifted labels because they assumed these students did not need additional support (Moon, 2009). In contrast, lower expectations on the part of parents, teachers, and the students themselves were associated with disability labels (Shifrer, 2013).

In the current study, most of the teachers (94%) who participated chose to refer the hypothetical student to gifted programming regardless of their certification type or the labeling condition to which they were assigned. With respect to research questions one, two, and three, the main effects for teacher type and labeling condition were nonsignificant and no significant interaction was found between the two primary independent variables, meaning the teachers’ referral ratings were similar regardless of teacher type or the presence or absence of a disability label. Of the total sample, 73% provided rationales for their referral decision, which provided a closer examination of the teachers’ understanding and perspectives with respect to gifted and/or 2E students. Overall, teacher rationales indicated most of the teachers, regardless of certification type, clearly recognized gifted characteristics and supported referring the hypothesized student to gifted programming despite a disability label.

Notably, as a systematic replication, the results of this study contrasted with those of Bianco (2005) and Bianco and Leech (2010) who found special education teachers were the least likely to refer a hypothesized student to gifted programming when compared with gifted and general education teachers. These researchers also posited the research in this area supported the idea of attention-related biases among different teacher types—gifted education teachers tended to focus on “gifted” aspects of the student while neglecting to give attention to their disabilities and special education teachers noted disability labels and might overlook giftedness. The current results also challenged the notion that the vast majority of the participants, including the special education teachers, noted gifted characteristics while very few appeared to focus on the disability labels.

With respect to interactive effects, the current results contrasted with those of Bianco (2005) and Bianco and Leech (2010), who found effects for both teacher type and disability labels, and Hoffman (2014) who found some interaction between area of expertise and referrals based on disability labels. The current results also differed from those of Webster (2015) who found bias for students with disability labels among general education teachers. Although the majority of the teachers who participated in this study were general education teachers, no such bias was found.

With respect to research question four, three themes emerged from the qualitative analysis of the teachers’ rationales: (a) the student shows gifted traits, (b) the student’s skills could be cultivated with support, and (c) the student does not fit the definition for giftedness. The reasons for the rating decisions were well distributed across all of the teacher types and labeling conditions. Similar to Bianco and Leech’s (2010) findings, the current study revealed the most common reason for teachers’ gifted programming

referrals was the child (in all three labeling conditions) showed gifted characteristics. Also, many teachers in Bianco and Leech's study and the current study believed gifted programming was needed to challenge the student in the vignette and support his strengths.

Interestingly, when there was hesitation to refer the student to gifted programming in the current study, over 70% of the rationales for not referring the student were for the student with the ASD label. Teachers who did not refer the student in the ASD labeling condition to gifted programming or who were hesitant to do so specifically mentioned the student's perceived psychological and social issues in their rationales. Despite the content of the vignette being the same for all three labeling conditions, very few comments referred to psychological and social issues for the student with no label and the student with an LD label. This could be attributed to the need for more training on ASD in Saudi Arabia. For example, Almasoud (2010) stated, "Saudi Arabia still has a long way to go including autistic students in mainstream schools" (p. 16). Recent research indicated Saudi Arabian teachers' perceptions and training related to students with autism have progressed but teachers are still in need of additional training on working with this student population (Haimour & Obaidat, 2013). However, this finding should not be overgeneralized as very few of the participants did not refer the student in all three labeling conditions to gifted programming (10.7%).

Cultural Influence and Teachers' Gifted Programming Referrals

Overall, in contrast with numerous Western studies of bias with respect to student labels (Allday et al., 2011; Bianco, 2005; Bianco & Leech, 2010; Foster et al., 1976; Shifrer, 2013), the teachers who participated in this research showed little negative bias

in their referrals to gifted programming for students with or without disability labels. Bianco and Leech (2010) found general education teachers were more likely to refer a student with a disability to gifted programming than were special education teachers and special education teachers were least likely to refer students to gifted programs regardless of disability labels or a lack thereof. In the current study, special education teachers were as likely to refer students with disability labels to gifted programming as were the general education teachers; they represented 50% of the participants who mentioned the hypothetical student having skills specific to STEM areas. The special education teachers who participated in the current study clearly recognized gifted characteristics regardless of the labeling condition and were aware of the extra services outside of the normal classroom setting needed to improve the talents and abilities of the student.

Conversely, Bianco-Cornish (2003) and Minner (1990) found general education teachers demonstrated a negative labeling bias when making referrals to gifted programs and emphasized the need for general education teachers to have a basic understanding of both gifted and special education. Similarly, Webster (2015) also found general education teachers were biased when referring students with disabilities to gifted programming. The current study challenged these findings as the majority of the participants were general education teachers and most did not indicate bias when referring students in all three labeling conditions for gifted programming.

However, cultural differences need to be considered; Alkhunaini (2013) indicated inconsistencies in findings might be related to differences in the culture and beliefs of the participants as well as contextual educational legislation. Alkhunaini mentioned that many teachers in Saudi Arabia have formal practical training in gifted education. They

are required to complete continuing education to stay abreast of the latest advances in the field. The Ministry of Education provides gifted teachers with formal practical training once they are hired to teach in gifted programs, and many general education teachers receive training related to special education as well (Alkhunain, 2013). Additionally, the majority of the teachers (74.33%) in the current study responded “yes” to the question of if they had received any special education training and the training received to support students with giftedness and disabilities occurred most frequently after graduation (53.2% of the teachers). This might explain the high levels of awareness of the teachers regarding gifted characteristic and their co-occurrence with disabilities compared with other studies (Bianco-Cornish, 2003; Minner, 1990; Webster, 2015).

Similar to Alkhunaini’s (2013) study, most of the teachers in the current study focused on positive gifted characteristics in their rationales and several teachers even noted negative characteristics could also be signs of giftedness. These findings suggested teachers in Saudi Arabia seemed to recognize the traits of giftedness, both positive and negative, and that giftedness and disability could co-occur. With being said, none of the teachers mentioned twice-exceptionality specifically in their qualitative responses. Alsamiri and Aljohni (2019) also found that although teachers were able to identify traits of both giftedness and disabilities in students, they did not specifically refer to the concept of twice-exceptionality: “Saudi teachers are able to understand some of the characteristics of SGLD [Students with Gifted and Learning Disabilities], but have difficulty comprehending where the balance lies between giftedness and learning disabilities” (p. 87). This was most likely because twice-exceptionality is still a newer concept in Saudi Arabia and more teacher training is needed on this topic. Because little

is known about how to identify and serve 2E students and the Saudi educational system employs a deficit model to address disabilities, specifically tailored professional development focused on strengths-based strategies for 2E students is needed in Saudi Arabia (Alsamiri, 2019; Alsamiri & Aljohani, 2019).

Importance of the Study and Implications for Practice

This study contributed to the body of empirical research on the effects of disability labels and teacher preparation on teachers' decisions to refer students to gifted programs. Although there were no significant differences for the three teacher groups and the three labeling conditions based on the MLR procedure, the qualitative analysis revealed the ASD label had at least some influence on the teachers' ratings. However, given that the majority of the teachers agreed with referring the hypothetical student to gifted programming, findings suggested limited bias based on disability labels overall. With that being said, it seemed most teachers were not familiar with the concept of twice-exceptionality and many had misconceptions about giftedness in general. Therefore, teachers in Saudi Arabia still need specific and consistent training with respect to identifying and providing services to 2E students as well foundational training in gifted education topics.

The strong inclination of all three teacher types to refer a student with 2E characteristics to gifted programming in this study indicated most Saudi teachers were likely familiar with gifted characteristics and were aware giftedness and disabilities could co-occur. However, the participants in this study demonstrated some misconceptions about gifted programming as some associated giftedness and gifted programs with STEM-related skills and predominately commented on the student's positive traits, which

were heavily related to achievement. This implied more foundational information and training on giftedness is needed to help teachers see students beyond high achievement in specific academic domains.

Further, many teachers also seemed to attribute negative traits to the student's disability (if they received this labeling condition) and the positive traits to giftedness. Although teachers seemed aware that students with disabilities could also be gifted, most teachers did not seem to understand how disability and giftedness in 2E students interacted and that these traits could be characteristic of 2E students in general. Therefore, more training is needed not only on foundational information in the fields of gifted and special education but also in how twice-exceptional children uniquely manifest traits in both of these areas.

Moreover, specific training is needed in how to identify 2E students. Training should familiarize all teachers with the definitions (including the eligibility criteria) for special education and gifted education programming as well as multi-dimensional approaches to identifying students who exhibit characteristics of both giftedness and disability. Such training would help teachers better identify likely candidates for further assessment and referral. Additional training is needed on how to support 2E students, especially in general education classrooms, once they are identified.

Teachers need to learn strengths-based teaching strategies that could support these students as opposed to only focusing on remediating learning deficits. It would also be helpful to arrange for professional development that involved learning from other educators and university professors who have expertise in this area. Partnerships should

be created between schools, universities, and other organizations to support teacher training needs on twice-exceptionality.

The results of this study also have implications for how best to support policy makers, teachers, and school administrators in their efforts to provide effective services for 2E students. A significant consideration is current studies found no formal policy exists for 2E students in Saudi Arabia, which poses an obstacle to educating 2E students. In this study, none of the participants used the term twice-exceptional, only a few mentioned co-occurring giftedness and disability specifically, and most focused on positive gifted characteristics, supporting the need for an established policy. Therefore, creating a policy that specifically defines and addresses the educational needs of 2E students in Saudi Arabia is a necessary first step. To accomplish this goal, workshops could be offered to policy makers in the Ministry of Education to increase their awareness of 2E students and researchers and practitioners who are knowledgeable about twice exceptionality could direct the development of policies and definitions.

Such a policy should include objectives, clear definitions, guidelines for identification, specifications for the provision of services, and processes for monitoring and evaluating students' progress in the educational system (Mohammed, 2018). Information and sufficient resources on twice-exceptionality should be made readily available to educators who need them. To ensure policy efficacy and effectiveness, evaluations of the success of the policy and implications should be based on standardized measures (Mohammed, 2018).

Regarding the implications of this study for school administrators, some foundational training about twice-exceptionality is needed to support them in developing

appropriate resources, school policies, and professional training for teachers and other school personnel with respect to 2E students. School administrators should also support frequent communication between gifted and special education teachers and provide ongoing teacher training about the characteristics of gifted students with disabilities to avoid overlooking students with disabilities who might also be gifted and vice-a-versa.

Limitations of the Study

The small number of teacher participants was one limitation of this study. This made finding differences or nuances in responses difficult. The low sample size partially explained the null results from the statistical analysis. The researcher attempted to have an equal number of participants in each teacher group and labeling condition; however, general education teachers gave the largest number of responses to the survey due to their greater availability. Although the sample distribution in this study might be representative of general education teachers, special education teachers, and gifted education teachers, the uneven distribution of labeling conditions across teacher types was a result of the district's dissemination efforts where the researcher had to rely on the Department of Education to distribute the survey. Equal group sizes would have increased the validity of this study's findings. Further, the participants only represented the Western region of Saudi Arabia and did not represent the country as a whole. These issues limited the generalizability of the findings.

Additionally, the validity of the responses could have been compromised by teachers' lack of intrinsic desire to participate in the study. Since the surveys were distributed through the Department of Education, this might have made some teachers feel it was mandatory to respond to the survey despite being instructed in the consent

form that they could stop the survey at any time. Their responses, therefore, might not have been as thoughtful as if they had voluntarily elected to participate in the research study.

Despite these limitations, the combination of quantitative and qualitative data provided the opportunity to obtain current information about how different types of teachers in Saudi Arabia viewed 2E students. The analysis of the teachers' rationales provided support for the quantitative analysis for the most part and provided deeper insight into the teachers' decision process. Lastly, this study provided an overview of teacher's attitudes with regard to referring students with 2E characteristic to gifted programming, which demonstrated an overall positive orientation toward these students.

Suggestions for Future Research

The results of this study have several implications for future research. First, it might be useful to supply teachers with more than one vignette of a 2E student to validate their referral rationales across two to three different students. Second, a deeper investigation about the levels of knowledge and skills specific to identifying and educating 2E students of teachers in Saudi Arabia, as well as Saudi teachers' beliefs about gifted programming, would provide useful information to guide training efforts among different teacher types. Last, it would also be beneficial to conduct qualitative research studies that included semi-structured interviews in order to acquire richer information about teachers' understanding of twice-exceptionality and their rationales for deciding who to refer for gifted programming. This would be helpful in gaining a better understanding of the status of twice exceptionality in Saudi Arabia.

In terms of practical applications, research that evaluates the effectiveness of a workshops or professional development on educating Saudi teachers about twice exceptionalism would be useful. Using quasi-experimental or experimental methodology, teachers' knowledge of twice-exceptionality could be measured before and after they received training and were tested statistically. Also, some research indicated discrepancies in the abilities and achievement of 2E students tended to increase with age (Baum, 1989; Brody & Mills, 1997; Reis et al., 2014). Therefore, another option for future research would be to interview or survey middle and high school teachers and parents of secondary 2E students to better understand factors that impeded and supported the growth of twice-exceptional students as they progressed through the educational system.

Summary and Conclusions

This study was a systematic replication of a previous study (Bianco & Leech, 2010) that investigated the influence of teacher type (general, special, or gifted education teachers) and labeling effects (students with and without a disability label) on teachers' referrals of a hypothetical student with 2E characteristics to gifted programming. The teachers read an identical vignette (translated to Arabic) and then provided a rating reflecting their level of agreement with referring the student to gifted programming. Multinomial logistic regression was used to assess the influence of teacher types, the labeling condition, and the teachers' ratings. Qualitative data were collected to gain deeper insight into the rationales for the participants' decisions.

The quantitative analysis showed teacher type and the presence or absence of a disability label had no significant influence on the overall ratings, which was in sharp

contrast to Bianco and Leech's (2010) results. The interaction of the two variables was also nonsignificant. Most of the participants chose to agree or strongly agree with a referral. However, an examination of the contrast groups within the labeling condition variable indicated the teachers were significantly less likely to choose strongly disagree than any other rating. Further, of the few nonreferrals, most were for students with ASD. Similar to findings from Bianco and Leech (2010), all three teacher types more frequently chose not to refer children with ASD to gifted programming than those with LD or no label. This suggested the LD label had little negative influence but ASD was, perhaps, perceived to be a unique challenge. However, it is vital to consider the small sample size when interpreting these findings.

The qualitative analysis suggested the teachers clearly recognized gifted characteristics and were oriented toward academic and social growth and development for the student in the vignette. Professionally and culturally, this showed support for shifts toward a progressive perspective regarding exceptional students and an orientation toward growth and inclusive practices for all students in the Saudi educational system. However, in light of the absence of rationales that specifically mentioned twice exceptionality and recent research that indicated a high level of ongoing need for policy and training on 2E in Saudi Arabia, it is important to avoid assuming awareness and a positive attitude constituted competence with respect to identifying and educating 2E students. Overall, this study provided helpful insight into the issue of twice-exceptionality in Saudi Arabia. However, it remains clear Saudi Arabia would benefit from establishing a clear policy and training programs specific to defining, identifying, and educating 2E students.

REFERENCES

- Agresti, A. (2007). *An introduction to categorical data analysis* (2nd ed.). Hoboken, NJ: John Wiley & Sons. Retrieved from <https://mregresion.files.wordpress.com/2012/08/agresti-introduction-to-categorical-data.pdf>
- Al-Ahmadi, N. (2009). *Teachers' perspectives and attitudes towards integrating students with learning disabilities in regular Saudi public schools* (Unpublished doctoral dissertation). Retrieved from https://etd.ohiolink.edu/!etd.send_file?accession=ohiou1241556018&disposition=
- Alamer, S. (2010). *Views of giftedness: The perceptions of teachers and parents regarding the traits of gifted children in Saudi Arabia* (Unpublished doctoral dissertation). Monash University, Melbourne, Australia.
- Alamer, S. M. (2014). Challenges facing gifted students in Saudi Arabia. *Research on Humanities and Social Sciences*, 4(24), 107–112.
- Alamira, F. Y. (2014). Gifted education in Saudi Arabia: Developments and promises for excellent education. *Asia-Pacific Federation on Giftedness (APFG)*, 1, 11–12.
- Alariefy, M. S. (2016). *Exploring the impact of having a child with a disability in Saudi Arabia: Implications for family support services* (Unpublished doctoral dissertation). University of Hull, England.
- Alawfi, A. M. (2016). *Gifted education in western and Islamic scholarship: A synthesis for Saudi education* (Unpublished doctoral dissertation). The University of Newcastle, Callaghan, Australia.

- Al-Amiri, F. (2011). The Saudi Arabian perspective on the misidentification issues of challenging gifted learners and the development of the four misses model of giftedness and AD/HD. *Dual Exceptionality*, 106–122.
- Aldabas, R. A. (2015). Special education in Saudi Arabia: History and areas for reform. *Creative Education*, 6, 1158–1167. <http://dx.doi.org/10.4236/ce.2015.611114>
- Al Garni, A. A. (2012). *Attitudes of future special education teachers toward gifted students and their education* (Unpublished doctoral dissertation). Queensland University of Technology. Australia.
- Ali, M. E. M. (2014). *Academic self-concept and self-confidence and their relationship with the creative abilities of gifted students with learning disabilities Egyptians and Saudis* (Cross-cultural study). Retrieved from <https://platform.almanhal.com/Files/2/111657>
- Aljughaiman, A. M., & Grigorenko, E. L. (2013). Growing up under pressure: The cultural and religious context of the Saudi system of gifted education. *Journal for the Education of the Gifted*, 36(3), 307–322.
- Al-Kheraigi, F. S. (1989). *Special education development in the Kingdom of Saudi Arabia from 1958 to 1987* (Unpublished doctoral dissertation). Syracuse University, New York.
- Alkhunaini, N. A. (2013). *Twice-exceptional learners: Saudi teachers' awareness and referral of gifted students with disabilities* (Unpublished master's thesis). University of Elon, North Carolina.

- Allday, R. A., Duhon, G. J., Blackburn-Ellis, S., & Van Dycke, J. L. (2011). The biasing effects of labels on direct observation by preservice teachers. *Teacher Education and Special Education, 34*(1), 52–58. doi:10.1177/0888406410380422
- Al-Makhalid, K. A. (2012). *Primary teachers' attitudes and knowledge regarding gifted pupils and their education in the Kingdom of Saudi Arabia* (Unpublished doctoral dissertation). University of Manchester, United Kingdom.
- Almasoud, H. (2010). *The education of children with autism in Saudi Arabia: A teaching guide* (Unpublished doctoral dissertation). King Saud University, Riyadh, Saudi Arabia.
- Al-Mousa, N. A. (2010). *The experience of the Kingdom of Saudi Arabia in mainstreaming students with special educational needs in public schools (A success story)*. Riyadh, Saudi Arabia: The Arab Bureau of Education for the Gulf States.
- Alnahdi, G. H. (2014). Educational change in Saudi Arabia. *Journal of International Education Research, 10*(1), 1–6.
- Al Qarni, M. A. (2010). *Evaluation of provisions for gifted students in Saudi Arabia* (Unpublished doctoral dissertation). University of Wollongong, New South Wales, Australia.
- Alqefari, A. (2010). *A study of programmes for gifted students in the Kingdom of Saudi Arabia* (Unpublished doctoral dissertation). Brunel University, Uxbridge, United Kingdom.
- Alquraini, T. (2010). Special education in Saudi Arabia: Challenges, perspectives, future possibilities. *International Journal of Special Education, 25*(3), 139–147.

- Alrubaian, A. A. (2014). *General education teachers' attitudes, knowledge, and strategies related to teaching students with learning disabilities in Saudi Arabia* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3684748)
- Alsamiri, Y. (2016). *Teachers' perspectives of the identification and support of Saudi primary students with giftedness and learning disabilities (SGLD)* (Unpublished doctoral dissertation). The University of New South Wales, Australia.
- Alsamiri, Y. (2019). Twice-exceptional students in Saudi Arabia: A review of the research literature from 1990 to 2018. *International Journal of Learning Management Systems*, 7(2), 63–70.
- Alsamiri, Y. A., & Aljohani, S. A. (2019). Learning disabilities teachers' attitudes about professional development to address the needs of students with giftedness and learning disabilities (SGLD): A qualitative study. *Global Journal of Health Science*, 11(1), 81-91.
- Altamimi, A. A., Lee, L. W., Sayed-Ahmed, A. S. A., & Kassem, M. M. (2015). Special education in Saudi Arabia: A synthesis of literature written in English. *International Journal of Special Education*, 30(3), 98–117.
- Alttasan, F. A., Alhyoti, N. E., & Feda, A. A. (2006). *Caring for gifted student with autism*. Riyadh, Saudi Arabia: The King AbdulAziz and His Companions Foundation for Giftedness and Creativity.

- Al-Zarkoosh, S. H. K., & Al-Abadi, M. S. Y. A. (2018). *Gifted and talented students in some Arab education systems programs*. Unpublished manuscript. Retrieved from https://www.researchgate.net/profile/Sanaahkhalaf_Al_Zargoshy/publication/319468931_bramj_rayt_altlbt_almwhwbyn_walmtfwqyn_fy_bd_alnzm_alrbytalraq-alardn-alswdyt/links/59ad5342aca272f8a161618c/bramj-rayt-altlbt-almwhwbyn-walmtfwqyn-fy-bd-alnzm-alrbytalraq-alardn-alswdyt.pdf
- Amend, E. R., & Peters, D. (2015). The role of clinical psychologist: Building a comprehensive understanding of 2e students. *Gifted Child Today*, 38(4), 243–245.
- Assouline, S. G., Nicpon, M., & Whiteman, C. (2010). Cognitive and psychosocial characteristics of gifted students with written language disability. *Gifted Child Quarterly*, 54(2), 102–115.
- Assouline, S. G., & Whiteman, C. S. (2011). Twice-exceptionality: Implications for school psychologists in the post-IDEA 2004 era. *Journal of Applied School Psychology*, 27(4), 380–402.
- Attiyah, K. A. M. (2017). The effectiveness of a cognitive behavioral program on improving self-organization skills in gifted students with learning disabilities in elementary school in North region in Saudi Arabia. *Psychological Counseling Journal*, 50(1), 408–434.
- Babad, E. Y., Inbar, J., & Rosenthal, R. (1982). Pygmalion, Galatea, and the Golem: Investigations of biased and unbiased teachers. *Journal of Educational Psychology*, 74(4), 459–474. doi:10.1037/0022-0663.74.4.459

- Bakhiet, S. E., & Essa, Y. A. (2012). Survey study to identify gifted children with learning disabilities at learning disabilities programs in Riyadh. *Journal of Educational and Psychological Sciences, 13*(4). Arabic copy.
- Baldwin, L., Baum, S., Pereles, D., & Hughes, C. (2015). Twice-exceptional learners: The journey toward a shared vision. *Gifted Child Today, 38*(4), 206–214.
- Baldwin, L., Omdal, S. N., & Pereles, D. (2015). Beyond stereotypes understanding, recognizing, and working with twice-exceptional learners. *Teaching Exceptional Children, 47*(4), 216–225.
- Batterjee, A. A. (2013). The relationship between SES and giftedness in Saudi Arabia. *The Mankind Quarterly, 53*(3), 3–52.
- Baum, S. (1989). Gifted but learning disabled: A puzzling paradox. *Preventing School Failure: Alternative Education for Children and Youth, 34*(1), 11–14.
- Baum, S. (1990). The gifted/learning disabled: A paradox for teachers. *The Education Digest, 55*(8), 54–58.
- Baum, S. (2004). Introduction to twice-exceptional and special populations of gifted students. In *Twice-exceptional and special populations of gifted students* (pp. xxxiii). Thousand Oaks, CA: Corwin Press.
- Baum, S., & Owen, S. V. (1988). High ability/learning disabled students: How are they different? *Gifted Child Quarterly, 32*(3), 321–326.
- Baum, S. M., Cooper, C. R., & Neu, T. W. (2001). Dual differentiation: An approach for meeting the curricular needs of gifted students with learning disabilities. *Psychology in the Schools, 38*(5), 477–490.

- Baum, S. M., Schader, R. M., & Hébert, T. P. (2014). Through a different lens: Reflecting on a strength-based, talent-focused approach for twice-exceptional learners. *Gifted Child Quarterly*, 58(4), 311–327.
- Bayaga, A. (2010). Multinomial logistic regression: Usage and application in risk analysis. *Journal of Applied Quantitative Methods*, 5(2), 288–297.
- Becker, H. S. (1963). *Outsiders: Studies in the sociology of deviance*. New York, NY: Free Press of Glencoe.
- Bianco, M. (2005). The effects of disability labels on special education and general education teachers' referrals for gifted programs. *Learning Disability Quarterly*, 28(4), 285–293.
- Bianco, M., & Leech, N. L. (2010). Twice-exceptional learners: Effects of teacher preparation and disability labels on gifted referrals. *Teacher Education and Special Education*, 33(4), 319–334.
- Bianco-Cornish, M. (2003). *The effects of disability labels on special education and general education teachers' referrals for gifted programs* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3120002)
- Brody, L. E., & Mills, C. J. (1997). Gifted children with learning disabilities: A review of the issues. *Journal of Learning Disabilities*, 30(3), 282–296.
- Coleman, M. R., & Roberts, J. L. (2015). Defining twice exceptional “2e.” *Gifted Child Today*, 38(4), 204–205.
- Connor, D. J., & Ferri, B. A. (2007). The conflict within: Resistance to inclusion and other paradoxes in special education. *Disability & Society*, 22(1), 63–77.

- Cook, B. G., Collins, L. W., Cook, S. C., & Cook, L. (2016). A replication by any other name: A systematic review of replicative intervention studies. *Remedial and Special Education, 37*(4), 223–234.
- Crawford, S., & Snart, F. (1994). Process-based remediation of decoding in gifted LD students: Three case studies. *Roeper Review, 16*, 247–252.
- Crepeau-Hobson, F., & Bianco, M. (2011). Identification of gifted students with learning disabilities in a response-to-intervention era. *Psychology in the Schools, 48*(2), 102–109.
- Creswell, J. W. (2005). *Educational research: Planning, conducting, and evaluating quantitative* (2nd ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Pearson Education.
- Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). Advances in mixed methods research designs. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 209–240). Thousand Oaks, CA: SAGE Publications.
- Crim, C., Hawkins, J., Ruban, L., & Johnson, S. (2008). Curricular modifications for elementary students with learning disabilities in high-, average-, and low-IQ groups. *Journal of Research in Childhood Education, 22*, 233–245.
- Davis, G. A., Rimm, S. B., & Siegle, D. B. (2014). *Education of the gifted and talented* (6th ed.). Essex, UK: Pearson Education.

- Donoghue, C. (2003). Challenging the authority of the medical definition of disability: An analysis of the resistance to the social constructionist paradigm. *Disability & Society, 18*(2), 199–208. doi:10.1080/0968759032000052833
- Dyson, A., & Kozleski, E. B. (2008). Disproportionality in special education: A transatlantic phenomenon. In L. Florian & M. J. McLaughlin (Eds.), *Disability classification in education: Issues and perspectives*. (pp. 170–190). Thousand Oaks, CA: Corwin Press.
- Elkind, J. (1973). The gifted child with learning disabilities. *Gifted Child Quarterly, 17*(3), 45–47.
- Embassy of the Kingdom of Saudi Arabia. (n.d.). *About Saudi Arabia*. Retrieved from <https://www.saudiembassy.net/about-saudi-arabia>
- Florian, L. (2007). *The SAGE handbook of special education*. Thousand Oaks, CA: SAGE Publications.
- Foley-Nicpon, M., Allmon, A., Sieck, B., & Stinson, R. D. (2011). Empirical investigation of twice-exceptionality: Where have we been and where are we going? *Gifted Child Quarterly, 55*(1), 3–17.
- Foley-Nicpon, M., Assouline, S. G., & Colangelo, N. (2013). Twice-exceptional learners: Who needs to know what? *Gifted Child Quarterly, 57*(3), 169–180.
- Foster, G. G., Schmidt, C. R., & Sabatino, D. (1976). Teacher expectancies and the label “learning disabilities.” *Journal of Learning Disabilities, 9*(2), 111.
doi:10.1177/002221947600900209
- Gagné, F. (1985). Giftedness and talent: Reexamining a reexamination of the definitions. *Gifted Child Quarterly, 29*(3), 103–112.

- Gagné, F. (2000). A differentiated model of giftedness and talent (DMGT). Retrieved from https://pdfs.semanticscholar.org/a0ae/7794202c8402ce7d5707b218980ba520b525.pdf?_ga=2.225097500.769999937.1581280781-825190506.1581280781
- Gagné, F. (2004). Transforming gifts into talents: The DMGT as a developmental theory. *High Ability Studies, 15*(2), 119–147.
- Gallagher, J. J. (1976). The sacred and profane uses of labeling. *Mental Retardation, 14*(6), 3–7.
- Gallagher, J. J. (1994). Current and historical thinking on education for gifted and talented students. In P. O. Ross (Ed.), *National excellence: An anthology of readings* (pp. 83–107). Washington, DC: Office of Educational Research and Improvement.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York, NY: Basic Books.
- Gardner, H. (1999). *Intelligence reframed: Multiple intelligences for the 21st century*. New York, NY: Basic Books.
- Gates, J. (2010). Children with gifts and talents: Looking beyond traditional labels. *Roeper Review, 32*(3), 200–206.
- General Authority of Statistics. (2018). *Number of public and private schools by educational stage and years*. Retrieved from <https://www.stats.gov.sa/en/933>
- Graefe, A. K. (2017). *Gifted students' perceptions of empowerment within high school classrooms* (Unpublished doctoral dissertation). University of Northern Colorado, Greeley.

- Gubbins, J. (2002). *Are programs and services for gifted and talented students responsive to beliefs?* Storrs, CT: University of Connecticut.
- Haimour, A. I., & Obaidat, Y. F. (2013). School teachers' knowledge about autism in Saudi Arabia. *World Journal of Education, 3*(5), 45–56.
- Hassan, A., & Jamaludin, N. S. (2009). Approaches and values in two gigantic educational philosophies: East and West. *Online Educational Research Journal, 1*(2), 1–15. Retrieved from <http://community.dur.ac.uk/p.b.tymms/oerj/publications/9.pdf>
- Herskovits, M. (2006). Hungary: Education for diverse talents students. In G. Eriksson & B. Wallace (Eds.), *Diversity in gifted education: International perspectives on global issues* (pp. 303–305). New York, NY: Routledge.
- Hoffman, J. M. (2014). *Referral decisions of teachers and school psychologists for twice-exceptional students* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3691873)
- Hughes, B., & Paterson, K. (1997). The social model of disability and the disappearing body: Towards a sociology of impairment. *Disability & Society, 12*(3), 325–340. doi:10.1080/09687599727209
- Individuals with Disabilities Education Act of 2004, P.L. 108–446 (2004).
- Jeweler, S., Barnes-Robinson, L., Shevitz, B. R., & Weinfeld, R. (2008). Bordering in excellence: A teaching tool for twice-exceptional students. *Gifted Child Today, 31*(2), 40–46.

- Jones, R. A. (2014). *Relationship of teacher training levels to teacher referrals for twice exceptional students* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3645228)
- King AbdulAziz and his Companions Foundation for Giftedness and Creativity (Mawhiba). (2017). *Gifted student*. Retrieved from <http://www.mawhiba.org.sa/En/Pages/home.aspx>
- Lalvani, P. (2015). Disability, stigma and otherness: Perspectives of parents and teachers. *International Journal of Disability, Development and Education*, 62(4), 379–393. doi:10.1080/1034912X.2015.1029877
- Leavitt, M. (2009). Giftedness: A problematic term. *Educational Psychology*, 20, 16–20.
- Lee, C-W. (2018). *A case study evaluation of the implementation of twice-exceptional professional development* (Unpublished doctoral dissertation). University of Northern Colorado, Greeley.
- Levin, J. R., O'Donnell, A. M., & Kratochwill, T. R. (2003). Educational/psychological intervention research. In W. Reynolds & G. Miller (Eds.), *Handbook of psychology, Educational psychology* (2nd ed.; pp. 557–581). Hoboken, NJ: John Wiley & Sons.
- Long, J. S., & Freese, J. (2006). *Regression models for categorical dependent variables using statistics* (2nd ed.). College Station, TX: StataCorp LP.
- Lovett, B. J., & Sparks, R. L. (2013). The identification and performance of gifted students with learning disability diagnoses: A quantitative synthesis. *Journal of Learning Disabilities*, 46(4), 304–316.

- Marland, S. P. (1972). *Education of the gifted and talented: Report to the Congress of the United States by the U.S. Commissioner of Education*. Washington, DC: U.S. Government Printing Office.
- Martin, E. W., Martin, R., & Terman, D. L. (1996). The legislative and litigation history of special education. *The Future of Children*, 6(1), 25–39.
- Matthews, M. S., Ritchotte, J. A., & Jolly, J. L. (2014). What's wrong with giftedness? Parents' perceptions of the gifted label. *International Studies in Sociology of Education*, 24(4), 372–393. doi:10.1080/09620214.2014.990225
- McCoach, D. B., Kehle, T. J., Bray, M. A., & Siegle, D. (2001). Best practices in the identification of gifted students with learning disabilities. *Psychology in the Schools*, 38(5), 403–411.
- Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation*. (4th ed.). San Francisco, CA: Josey-Bass.
- Ministry of Education. (2002a). *Disability Welfare System Law 224*. Riyadh, Saudi Arabia: Ministry of Education, General Secretariat for Special Education.
- Ministry of Education. (2002b). *Document of rules and regulations for special education institutes and programs*. Riyadh, Saudi Arabia: General Secretariat for Special Education.
- Ministry of Education. (2015a). *Education*. Retrieved from <https://www.moe.gov.sa/ar/HighEducation/Pages/default.aspx>
- Ministry of Education. (2015b). *Providing statistical information on general education service*. Retrieved from <https://www.moe.gov.sa/ar/Pages/StatisticalInformation.aspx>

- Ministry of Education. (2019). *General administration for gifted students*. Retrieved from <https://departments.moe.gov.sa/EducationAgency/RelatedDepartments/Giftedtalented/Girls/Pages/Stagesdevelopment.aspx>
- Ministry of Finance. (2018). *Country general budget statement for the fiscal year 1439–1440 AH*. Retrieved from <https://www.mof.gov.sa/budget/Documents/بيان20%الميزانية.pdf>
- Minner, S. (1990). Teacher evaluations of case descriptions of LD gifted children. *Gifted Child Quarterly*, 34(1), 37–39.
- Missett, T. C., Azano, A. P., Callahan, C. M., & Landrum, K. (2016). The influence of teacher expectations about twice-exceptional students on the use of high quality gifted curriculum: A case study approach. *Exceptionality*, 24(1), 18–31.
- Mitra, S., & Sambamoorthi, U. (2014). Disability prevalence among adults: Estimates for 54 countries and progress toward a global estimate. *Disability and Rehabilitation*, 36(11), 940–947. doi:10.3109/09638288.2013.825333
- Mohamed, A. H. H. (2006). Egypt: The challenges of gifted and talented education in the Arab Republic of Egypt. In G. Eriksson & B. Wallace (Eds.), *Diversity in gifted education: International perspectives on global issues* (pp. 296–298). New York, NY: Routledge.
- Mohammed, A. (2018). Twice-exceptionality in the Kingdom of Saudi Arabia: Policy recommendations for advances in special education. *International Journal of Special Education*, 33(2), 397-415
- Mönks, F. J., & Pflüger, R. (2005). *Gifted education in 21 European countries: Inventory and perspective*. Nijmegen: Radboud University Nijmegen.

- Montgomery, J. K. (2007). *Characteristics and development of male adolescent students who are gifted, gifted twice-exceptional, or attention deficit: A mixed-methods study* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3266858)
- Moon, S. M. (2009). Myth 15: High-ability students don't face problems and challenges. *Gifted Child Quarterly*, 53(4), 274–276.
- Moore, F. R., Filippou, D., & Perrett, D. I. (2011). Intelligence and attractiveness in the face: Beyond the attractiveness halo effect. *Journal of Evolutionary Psychology*, 9(3), 205–217.
- Mukuria, G. M., & Bakken, J. P. (2010). Labeling of students with disabilities: Needed for students to get their needs met. In F. E. Obiakor, J. P. Bakken, & A. F. Rotatori (Eds.), *Current issues in special education: Identification, assessment and instruction* (pp. 101–114). Bradford: Emerald Group Publishing Limited.
- Mullet, D. R., & Rinn, A. N. (2015). Giftedness and ADHD: Identification, misdiagnosis, and dual diagnosis. *Roeper Review*, 37(4), 195–207.
- Mullis, I. V. S., Martin, M. O., Goh, S., & Cotter, K. (Eds.). (2016). *TIMSS 2015 encyclopedia: Education policy and curriculum in mathematics and science*. Retrieved from <http://timssandpirls.bc.edu/timss2015/encyclopedia/countries/saudi-arabia/>
- Murry, F. R., & Alqahtani, R. M. A. (2015). Teaching special education law in Saudi Arabia: Improving pre-service teacher education and services to students with disabilities. *World Journal of Education*, 5(6), 57–64.

- National Association for Gifted Children. (2010). *Redefining giftedness for a new century: Shifting the paradigm* (position statement). Retrieved from <https://www.nagc.org/sites/default/files/Position%20Statement/Redefining%20Giftedness%20for%20a%20New%20Century.pdf>
- National Association for Gifted Children. (2015). *State of the states in gifted education 2014-2015: Policy and practice data*, 1–36. Retrieved from <http://www.nagc.org/resources-publications/gifted-state/2014-2015-state-states-gifted-education>
- Nichols, J. A. (2015). *Elementary twice-exceptional students: An investigation of the number of school days until identification based upon teacher-type and student ethnicity* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3712757)
- Nisbett, R. E., & Wilson, T. D. (1977). The halo effect: Evidence for unconscious alteration of judgments. *Journal of Personality and Social Psychology*, 35(4), 250–256.
- O'Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity: International Journal of Methodology*, 41(5), 673–690. <https://doi.org/10.1007/s11135-006-9018-6>
- Ohan, J. L., Visser, T. A., Strain, M. C., & Allen, L. (2011). Teachers' and education students' perceptions of and reactions to children with and without the diagnostic label "ADHD". *Journal of School Psychology*, 49(1), 81–105.
- Oliver, M. (2004). The social model in action: If I had a hammer. In C Barnes & G Mercer (Eds.), *Implementing the social model of disability: Theory and research* (pp. 18-31). Leeds, UK: The Disability Press.

- Osborne, J. W. (2014). *Best practices in logistic regression*. Thousand Oaks, CA: SAGE Publications.
- Paule, M. (2006). England: Issue in education for gifted and talented pupils. In G. Eriksson & B. Wallace (Eds.), *Diversity in gifted education: International perspectives on global issues* (pp. 298–301). New York, NY: Routledge.
- Pedhazur, E. J. (1997). *Multiple regression in behavioral research: Explanation and prediction* (3rd ed.). New York, NY: Thompson Learning Inc.
- Pfeiffer, S. I., & Blei, S. (2008). Gifted identification beyond the IQ test: Rating scales and other assessment procedures. In *Handbook of giftedness in children* (pp. 177–198). Boston, MA: Springer.
- Piechowski, M. M., & Colangelo, N. (1984). Developmental potential of the gifted. *Gifted Child Quarterly*, 28(2), 80–88.
- Reis, S. M., & Renzulli, J. S. (2010). Is there still a need for gifted education? An examination of current research. *Learning and Individual Differences*, 20(4), 308–317.
- Reis, S. M., Baum, S. M., & Burke, E. (2014). An operational definition of twice-exceptional learners: Implications and applications. *Gifted Child Quarterly*, 58(3), 217–230.
- Reis, S. M., McGuire, J. M., & Neu, T. W. (2000). Compensation strategies used by high-ability students with learning disabilities who succeed in college. *Gifted Child Quarterly*, 44(2), 123–134.
- Renzulli, J. S. (1990). A practical system for identifying gifted and talented students. *Early Child Development and Care*, 63(1), 9–18.

- Renzulli, J. (1998). The three-ring conception of giftedness. In S. Baum, S. Reis, & L. Maxfield (Eds.), *Nurturing the gifts and talents of primary grade students* (pp. 246-279). Mansfield Centre, CT: Creative Learning Press.
- Renzulli, J. S. (2005). The three-ring conception of giftedness: A developmental model for promoting creative productivity. In R. J. Sternberg & J. Davidson (Eds.), *Conceptions of giftedness* (2nd ed.; pp. 217–245). Boston, MA: Cambridge University Press.
- Reynolds, C. R., Vannest, K. J., & Fletcher-Janzen, E. (2013). *Encyclopedia of special education* (4th ed.). Hoboken, NJ: Wiley.
- Ritchotte, J. A., & Zaghlawan, H. Y. (2019). Coaching parents to use higher level questioning with their twice-exceptional children. *Gifted Child Quarterly*, 63(2), 86–101.
- Robinson, S. M. (1999). Meeting the needs of students who are gifted and have learning disabilities. *Intervention in School and Clinic*, 34, 195–204.
- Rosenthal, R., & Jacobson, L. (1968). *Pygmalion in the classroom: Teacher expectation and pupils' intellectual development*. New York, NY: Rinehart and Winston.
- Rouse, M., Henderson, K., & Danielson, L. (2008). Concluding thoughts: On perspectives and purposes of disability classification systems in education. In L. Florian & M. J. McLaughlin (Eds.), *Disability classification in education: Issues and perspectives* (pp. 263-268). Thousand Oaks, CA: Corwin Press.
- Ruban, L. M., & Reis, S. M. (2005). Identification and assessment of gifted students with learning disabilities. *Theory Into Practice*, 44(2), 115–124.

- Sak, U. (2006). Turkey: Education for gifted students. In G. Eriksson & B. Wallace (Eds.), *Diversity in gifted education: International perspectives on global issues* (pp. 312–313). New York, NY: Routledge.
- Saudi Vision 2030. (2017). *Human capital development program*. Retrieved from <https://vision2030.gov.sa/en/programs/HCDP>
- Sefer, J. (2006). Serbia: Diversity and giftedness. In G. Eriksson & B. Wallace (Eds.), *Diversity in gifted education: International perspectives on global issues* (pp. 309–312). New York, NY: Routledge.
- Sexton, K. A. (2016). *Stakeholders' knowledge impacting the academic and social-emotional needs of twice-exceptional students in Kentucky* (Doctorate dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 10249181)
- Shakespeare, T. (2013). The social model of disability. In L. J. Davis (Ed.), *The disability studies reader* (4th ed.; pp. 214–221). New York, NY: Routledge.
- Shifrer, D. (2013). Stigma of a label: Educational expectations for high school students labeled with learning disabilities. *Journal of Health and Social Behavior*, 54(4), 462–480.
- Skiba, R. J., Simmons, A. B., Ritter, S., Gibb, A. C., Rausch, M. K., Cuadrado, J., & Chung, C. G. (2008). Achieving equity in special education: History, status, and current challenges. *Exceptional Children*, 74(3), 264–288.
- Spencer, S. J., Steele, C. M., & Quinn, D. M. (1999). Stereotype threat and women's math performance. *Journal of Experimental Social Psychology*, 35, 4–28.

- Stanley, G. K., & Baines, L. (2002). Celebrating mediocrity? How schools shortchange gifted students. *Roeper Review*, 25(1), 11–13.
<http://doi.org/10.1080/02783190209554190>
- Starkweather, J., & Moske, A. K. (2011). *Multinomial logistic regression*. Retrieved from http://www.unt.edu/rss/class/Jon/Benchmarks/MLR_JDS_Aug2011.pdf, 29, 2825–2830.
- Sternberg, R. J. (1984a). Toward a triarchic theory of human intelligence. *Behavioral and Brain Sciences*, 7(2), 269–315.
- Sternberg, R. J. (1984b). What should intelligence tests test? Implications of a triarchic theory of intelligence for intelligence testing. *Educational Researcher*, 13(1), 5–15.
- Sternberg, R. J. (1985). *Beyond IQ: A triarchic theory of human intelligence*. New York, NY: Cambridge University Press.
- Sternberg, R. J. (2000). The theory of successful intelligence. *Gifted Education International*, 15, 4–21.
- Stevenson, H. W., Lee, S. Y., & Chen, C. (1994). Education of gifted and talented students in Mainland China, Taiwan, and Japan. *Journal for the Education of the Gifted*, 17(2), 104–130.
- Trail, B. A. (2011). *Twice-exceptional gifted children: Understanding, teaching, and counseling gifted students*. Waco, TX: Prufrock Press Inc.
- Triano, S. L. (2000). Categorical eligibility for special education: The enshrinement of the medical model in disability policy. *Disability Studies*, 20(4). Retrieved from <http://dsq-sds.org/article/viewFile/263/276>

- U.S. Department of Health and Human Services. (2006). *Fact sheet: Your rights under section 504 of the Rehabilitation Act*. Retrieved from <http://onestarfoundation.org/wp-content/uploads/2012/06/504-Fact-sheet.pdf>
- Webster, L. L. (2015). *Today's gifted child: A qualitative case study on the teachers and the twice exceptional student* (Unpublished doctoral dissertation). Northcentral University, San Diego, CA.
- Wedell, K. (2008). Evolving dilemmas about categorization. In L. Florian & M. J. McLaughlin (Eds.), *Disability classification in education: Issues and perspectives* (pp. 47–67). Thousand Oaks, CA: Corwin Press.
- Yell, M. L., Rogers, D., & Rogers, E. L. (1998). The legal history of special education. *Remedial and Special Education, 19*(4), 219–228.
- Zhang, Q., & Shi, J. (2006). China: Psychological research on gifted and talented 'supernormal' children. In G. Eriksson & B. Wallace (Eds.), *Diversity in gifted education: International perspectives on global issues* (pp. 293–296). New York, NY: Routledge.
- Zirkel, P. A. (2004). The case law on gifted education: A new look. *The Gifted Child Quarterly, 48*(4), 309–314.
- Zirkel, P. A. (2010). Legal rights for gifted education. *Parenting for High Potential, 15*–18.

APPENDIX A
THE SURVEY

THE SURVEY

Instructions

This study investigates your recommendations as a teacher in identification decisions for students' education in Saudi Arabia. This survey consists of three sections:

- a) You will read a short story about a hypothesized student in your classroom;
- b) You will make a decision about referring the student to a specific program and the reason behind this decision;
- c) You will answer demographics questions for research purposes only.

At the top of each section, some instructions about how you should complete it are given. Please read these instructions carefully before you start the relevant section.

Section 1a: Vignette Stem (No Exceptional Condition)

Please carefully read the short story below about a hypothesized student in your classroom. After you are done with reading, move to the next section to respond to the statements and questions that follow.

A.K., a fourth-grade student, is currently attending your school.

A.K. has been described as intense, inquisitive, energetic, and imaginative. A.K. is committed to completing tasks that are self-selected and self-directed. This student is an independent learner often prefers unstructured, independent tasks to teacher directed or cooperative group activities. A.K. prefers finding solutions to problems independently and in sometimes unconventional ways.

A.K. is extremely sensitive to criticism (self-imposed and by others). This student is very self-critical and becomes easily frustrated and angry when mistakes are made or there is pressure for completing work within a deadline.

This student has many interests, particularly around themes of investigating UFOs and life on other planets. Given the opportunity, A.K. could spend hours investigating this line of interest.

Teachers have noted that A.K. dislikes and resists most routine practice tasks such as math drills, spelling tests, handwriting practices and any copy tasks.

Overall, A.K.'s language arts scores reflect above-grade level achievement in reading and writing. A.K.'s reading skills are well above-grade level. This student enjoys reading most anything on topics of interest including science and science fiction but dislikes and resists suggestions to expand reading to other areas.

While A.K. enjoys math and has a very good grasp of mathematical concepts, many careless computation errors are made especially when attempts are made at working too quickly. Recent scores on achievement tests reflect grade-level achievement in mathematics; however, classroom performance is lower than one would expect.

Socially, A.K. has a few close friends and is generally accepted by peers. A.K.'s friends enjoy hearing about the most recent UFO findings and are intrigued by this child's vivid imagination. Problems surface when A.K. dominates activities or becomes argumentative and spirited when challenged by peers or adults. While this problem has surfaced in the classroom and on the playground, it is most frequently observed during competitive activities (e.g. spelling bees, sports). This can sometimes be a problem for A.K., friends and teachers.

Section 1b: Vignette Stem (Learning Disability Label Condition)

Please carefully read the short story below about a hypothesized student in your classroom. After you are done with reading, move to the next section to respond to the statements and questions that follow.

A.K., a fourth-grade student with a learning disability diagnosis, is currently attending your school.

A.K. has been described as intense, inquisitive, energetic, and imaginative. A.K. is committed to completing tasks that are self-selected and self-directed. This student is an independent learner often prefers unstructured, independent tasks to teacher directed or cooperative group activities. A.K. prefers finding solutions to problems independently and in sometimes unconventional ways.

A.K. is extremely sensitive to criticism (self-imposed and by others). This student is very self-critical and becomes easily frustrated and angry when mistakes are made or there is pressure for completing work within a deadline.

This student has many interests, particularly around themes of investigating UFOs and life on other planets. Given the opportunity, A.K. could spend hours investigating this line of interest.

Teachers have noted that A.K. dislikes and resists most routine practice tasks such as math drills, spelling tests, handwriting practices and any copy tasks.

Overall, A.K.'s language arts scores reflect above-grade level achievement in reading and writing. A.K.'s reading skills are well above-grade level. This student enjoys reading most anything on topics of interest including science and science fiction but dislikes and resists suggestions to expand reading to other areas.

While A.K. enjoys math and has a very good grasp of mathematical concepts, many careless computation errors are made especially when attempts are made at working too quickly. Recent scores on achievement tests reflect grade-level achievement in mathematics; however, classroom performance is lower than one would expect.

Socially, A.K. has a few close friends and is generally accepted by peers. A.K.'s friends enjoy hearing about the most recent UFO findings and are intrigued by this child's vivid imagination. Problems surface when A.K. dominates activities or becomes argumentative and spirited when challenged by peers or adults. While this problem has surfaced in the classroom and on the playground, it is most frequently observed during competitive activities (e.g. spelling bees, sports). This can sometimes be a problem for A.K., friends and teachers.

Section 1c: Vignette Stem (Autism Spectrum Disorder Label Condition)

Please carefully read the short story below about a hypothesized student in your classroom. After you are done with reading, move to the next section to respond to the statements and questions that follow.

A.K., a fourth-grade student with an autism spectrum disorder diagnosis, is currently attending your school.

A.K. has been described as intense, inquisitive, energetic, and imaginative. A.K. is committed to completing tasks that are self-selected and self-directed. This student is an independent learner often prefers unstructured, independent tasks to teacher directed

or cooperative group activities. A.K. prefers finding solutions to problems independently and in sometimes unconventional ways.

A.K. is extremely sensitive to criticism (self-imposed and by others). This student is very self-critical and becomes easily frustrated and angry when mistakes are made or there is pressure for completing work within a deadline.

This student has many interests, particularly around themes of investigating UFOs and life on other planets. Given the opportunity, A.K. could spend hours investigating this line of interest.

Teachers have noted that A.K. dislikes and resists most routine practice tasks such as math drills, spelling tests, handwriting practices and any copy tasks.

Overall, A.K.'s language arts scores reflect above-grade level achievement in reading and writing. A.K.'s reading skills are well above-grade level. This student enjoys reading most anything on topics of interest including science and science fiction but dislikes and resists suggestions to expand reading to other areas.

While A.K. enjoys math and has a very good grasp of mathematical concepts, many careless computation errors are made especially when attempts are made at working too quickly. Recent scores on achievement tests reflect grade-level achievement in mathematics; however, classroom performance is lower than one would expect.

Socially, A.K. has a few close friends and is generally accepted by peers. A.K.'s friends enjoy hearing about the most recent UFO findings and are intrigued by this child's vivid imagination. Problems surface when A.K. dominates activities or becomes argumentative and spirited when challenged by peers or adults. While this problem has surfaced in the classroom and on the playground, it is most frequently observed during competitive activities (e.g., spelling bees, sports). This can sometimes be a problem for A.K., friends, and teachers.

APPENDIX B

SECTION 2: RATINGS AND REASONS QUESTIONS

SECTION 2: RATINGS AND REASONS QUESTIONS

Based on the information in the story you have just read concerning this hypothetical student, please read and answer each of the following questions by circling one of the four responses. For the purposes of this survey, please assume that the recommended programs are available at your school.

1) I would recommend that this student join one of the *after-school science clubs*.

Strongly agree Agree Disagree Strongly disagree

2) I would recommend that this student participate in our *school sports program*.

Strongly agree Agree Disagree Strongly disagree

3) I would recommend that this student be referred for placement into our *school's gifted program*.

Strongly agree Agree Disagree Strongly disagree

4) I would recommend that this student be referred for *counseling services provided* at our school or by an outside agency.

Strongly agree Agree Disagree Strongly disagree

5) I would recommend that this student participate in *social skills training*.

Strongly agree Agree Disagree Strongly disagree

6) I would recommend that this student participate in our *math-tutoring program*.

Strongly agree Agree Disagree Strongly disagree

7) Please explain the factors that contributed to your decision to refer or not refer A.K. for gifted programming?

APPENDIX C

SECTION 3: DEMOGRAPHIC QUESTIONS

SECTION 3: DEMOGRAPHIC QUESTIONS

1. Gender: M_____ F_____
2. Age:
 - 20–24_____
 - 25–30_____
 - 31–34_____
 - 35–40_____
 - 41–45 _____
 - 46–50_____
 - 50 and older_____
3. What is your city?
 - Makkah
 - Medina
 - Jeddah
 - Other (please specify): _____
4. Current teaching grade (please choose) and specify if other:

1st grade	4th grade
2nd grade	5th grade
3rd grade	6th grade
Special Education	Gifted education
Other (specify) _____	
5. Circle highest degree earned:
 - Bachelor’s degree
 - Master’s degree
 - Doctorate degree
 - Professional degree
 - Specialist (explain) _____
6. Current teaching certification (specify) _____
7. Number of years total teaching experience:
 - 1–5
 - 6–10
 - 11–15
 - 16–11
 - 21 and over
8. What is your current role in the school?
 - Special education teacher

- General education teacher
 - Gifted education teacher
 - Other (please specify): _____
9. What type of training have you received to support students with giftedness and disabilities? (*check all that apply*)
- None
 - Preteaching. University Subject
 - Post-teaching. University Subject
 - Educational degree in special education
 - Educational degree in gifted education
 - Professional development in gifted education (workshop, short course, etc.)
 - Other/specify e.g. A Certificate course: _____
10. What type of training have you had to identify students with giftedness and disabilities? (*check all that apply*)
- None
 - Preteaching, University Subject
 - Post-teaching, University Subject
 - Educational degree in special education
 - Educational degree in gifted education
 - Professional development in gifted education (workshop, short course, etc.)
 - Other/specify e.g. A Certificate course: _____

(Adapted from Berman, Schultz, & Weber, 2012; Foley-Nicpon, 2013; Smith & Chan, 1998; Smith, 1997).

APPENDIX D

EMAIL COMMUNICATION WITH DR. BIANCO

From: **Bianco, Margarita** Margarita.Bianco@ucdenver.edu
 Subject: Re: A permission
 Date: September 17, 2018 at 5:44 PM
 To: Mohammed, Amra moha6309@bears.unco.edu
 Cc: Bianco, Margarita Margarita.Bianco@ucdenver.edu, Ritchotte, Jennifer jennifer.ritchotte@unco.edu



Hello Amra,
 Happy to grant permission as long as you give proper attribution - and provide a copy of your completed findings.
 Thank you - and best wishes.
 Dr. Margarita Bianco

[New Publications](#)

[Examining Grow Your Own Programs Across the Teacher Development Continuum: Mining Research on Teachers of Color and Nontraditional Educator Pipelines](#)
Journal of Teacher Education, August 2018
 Gist, Bianco, and Lynn

[To Diversify the Teacher Workforce, Start Early](#)
Education Leadership, May 2018 Goings, Brandehoff, and Bianco

University of Colorado Denver | Associate Professor | Timmerhaus Teaching Ambassador,
Dr. Margarita Bianco
 a: 1380 Lawrence Street (#639), Denver, Colorado, 80207 | t: (303)315-4956 m: (303) 907-9767
 w: <http://www.Pathways2Teaching.com> e: margarita.bianco@ucdenver.edu

On Sep 17, 2018, at 5:01 PM, Mohammed, Amra <moha6309@bears.unco.edu> wrote:

Dear Dr. Bianco,

My name is Amra Mohammed. I am a graduate student at the University of Northern Colorado working on my Ph.D. in Special Education. For my dissertation study, under the supervision of Dr. Jennifer Ritchotte, I am planning to research how labeling students with a disability impacts their referral to gifted programs. This research will systematically replicate your study, "Twice-Exceptional Learners: Effect of Teacher Preparation and Disability Labels on Gifted Referrals." My dissertation study will take place in Saudi Arabia because I believe this research is greatly needed there. A systematic replication will require using many of your methodological procedures, including the vignette that you created for your 2010 study. I may need to modify the vignette to ensure it is culturally appropriate for Saudi Arabian culture and the educational system.

I am writing to ask for your permission to systematically replicate your study for my dissertation research. I greatly appreciate any guidance and support you are able to provide.

Sincerely,

Amra

APPENDIX E
INSTITUTIONAL REVIEW BOARD APPROVAL



Institutional Review Board

DATE: December 19, 2018

TO: Amra Mohammed, PhD

FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [1351401-3] The Effects of Disability Labels on Teachers' Referrals of Twice-Exceptional Students to Gifted Programs in Saudi Arabia

SUBMISSION TYPE: Revision

ACTION: APPROVAL/VERIFICATION OF EXEMPT STATUS

DECISION DATE: December 19, 2018

EXPIRATION DATE: December 19, 2022

Thank you for your submission of Revision materials for this project. The University of Northern Colorado (UNCO) IRB approves this project and verifies its status as EXEMPT according to federal IRB regulations.

Amra -

Thank you for your patience with the UNC IRB process. Your amended/modified and additional materials now make your application verified/approved exempt. You may begin participant recruitment and data collection using these amended/modified materials.

Best wishes to you with this research.

Sincerely,

Dr. Megan Stellino, UNC IRB Co-Chair

We will retain a copy of this correspondence within our records for a duration of 4 years.

If you have any questions, please contact Nicole Morse at 970-351-1910 or nicole.morse@unco.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB's records.

APPENDIX F
INITIAL EMAIL COMMUNICATION WITH
THE MINISTRY OF EDUCATION

APPENDIX G

**TO THE GENERAL DIRECTOR OF THE CENTER
OF THE EDUCATION POLICIES RESEARCH**

Dr. Abdulkareem Mirza

Peace, mercy and blessings of God...

My name is Amra Mohammed, (National ID 1002591566). I am a scholar from Jeddah University and am currently a doctoral student in the Special Education Department at the University of Northern Colorado. I am currently working on my dissertation research project titled “The Effects of Disability Labels on Teachers’ Referrals of Twice-Exceptional Children to Gifted Programs in Saudi Arabia” under the supervision of Dr. Jennifer Ritchotte. The goal of this study is to examine the impact of the presence of disability labels, such as a learning disability or autism, on the teacher’s decision to refer the student to the school’s gifted program. The importance of this study stems from its focus on twice-exceptional (2E) students.

Therefore, I hope your excellency will kindly allow me to conduct my study by communication with teachers, distributing questionnaires to them, and gathering from them the required information for my scientific research purposes.

For any questions or concerns about my research, or about the study’s procedures, please contact me via one of the listed methods below.

Thank you for your consideration,

Amra Mohammed
Doctoral Student
Department of Special Educational
University of Northern Colorado
Phone: 970-301-6171
Email: moha6309@bears.unco.edu

APPENDIX H

EMAILS WITH THE MINISTRY OF EDUCATION

طى بت طبيق دراسة غيية /

Amra Mohammed

Mon 1/7/2019 6:48 PM

To: aamirza@moe.gov.sa <aamirza@moe.gov.sa>

3 attachments (312 KB)

Amra Travel Letter.pdf; Amra.pdf; d.docx; لة واصل مع وزارة لغية م

لس لم غيية م لغتاور

فوق تال خطاب ال م طوب وارغ بغي ميلغوي ابرغ لة غيية مع اجراءات لبحث

خالص لالشكر ولتقير ل ك

عجرة مع دلرح من

RE: بشأن بحث الأستاذة عمره

jasem abdullah alsoud <j-soud@MOE.GOV.SA>

Sat 1/12/2019 11:02 PM

To: Amra Mohammed <amra_saleh@hotmail.com>

المطلوب : خطاب من الملحقية موجه لمدير عام مركز بحوث سياسات التعليم . نماذج الاستبانة المراد تطبيقها في صورتها النهائية . تحديد عينة البحث وتسميتها بشكل واضح . تكون استبانة البحث على رابط أو باركود . ويفضل أن تكون بكليهما . وكل الدعوات لسعادتك بالتوفيق

From: Amra Mohammed <amra_saleh@hotmail.com>

Sent: 10/Jan/2019 7:09 PM

To: jasem abdullah alsoud <j-soud@MOE.GOV.SA>

Subject: Re: بشأن بحث الأستاذة عمره

وعليكم السلام ورحمة الله وبركاته
اشكرك جزيل الشكر على متابعة طلي لكن انا لا اريد فقط توزيع الاستبان
وفقا للدراسة احتاج توزيع العينة عشوائيا
لان هناك 3 نماذج من الاستبان واريد توزيع العينة الى ثلاث مجموعات حتى تستمل كل عينة نموذج

هل ممكن اخباري بما يمكن عمله وما هي الخطوات التالية التي ستقومون بها

ولك كل الشكر والتقدير

عمره

From: jasem abdullah alsoud <j-soud@MOE.GOV.SA>

Sent: Thursday, January 10, 2019 1:51 AM

To: amra_saleh@hotmail.com

Subject: بشأن بحث الأستاذة عمره

السلام عليكم ورحمة الله

أمل التكرم بإرسال أدوات البحث

مع الدعوات لسعادتك بالتوفيق

إخلاء مسؤولية: هذه الرسالة وأي مرفق بها تعتبر وثائق سرية وخاصة. نأمل منك إن وصلتك بالخطأ أن تُبلغ المرسل بذلك وحذفها ومرفقاتها من الحاسب الآلي الخاص بك. ولا يجوز لك نسخ هذه الرسالة أو أي جزء منها وأي مرفق بها. ، ولا يجوز لك البوح بمحتوياتها لأي شخص أو استعمالها لأي غرض مالم ينص المرسل بذلك. كما أن المواضيع والآراء التي تحويها هذه الرسالة تعبر فقط عن رأي المرسل وليس بالضرورة رأي وزارة التعليم. ولقد عملت وزارة التعليم ما بوسعها لحماية البريد الإلكتروني من الفيروسات إلا أن الوزارة لا تتحمل أي مسؤولية عن الأضرار الناتجة عن أي محتوى أو فيروسات قد يحملها هذا البريد.

Disclaimer: This message and its attachment, if any, are confidential and may contain legally privileged information. If you are not the intended recipient, please contact the sender immediately and delete this message and its attachment, if any, from your system. You should not copy this message or disclose its contents to any other person or use it for any purpose. Statements and opinions expressed in this e-mail are those of the

APPENDIX I
RECRUITING SAMPLES REQUESTED BY
MINISTRY OF EDUCATION

PROCEDURES FOR RECRUITING SAMPLES REQUESTED BY MOE

The sample:

1. The research sample consists of General, Special, and Gifted Education primary school teachers in the Western Region (Makkah, Madinah, Jeddah).
2. Teachers have been on the job for at least one year.
3. The sample is distributed randomly.
 - In each group of teachers (general, special, and gifted education), the teachers are numerically arranged from 1 to the max size of selected teachers;
 - Teachers are randomly selected, based on the random table attached.
 - The surveys will be distributed to them randomly based on the random table too.
4. The sample number, the regional zones, and the forms, shall be as written in the following table:

Student's label	First sample (No Label)		Second sample (Autism)		Third sample (LD)		Total
Survey links	Survey 1 link		Survey 2 link		Survey 3 link		
City Teacher type	Mak	Med	Mak	Med	Mak	Med	
General Ed Teachers	10	10	10	10	10	10	60
Special Ed Teachers	10	10	10	10	10	10	60
Gifted Ed Teachers	10	10	10	10	10	10	60
Total	30	30	30	30	30	30	180

طريقة التطبيق

العينة:

1. تتكون عينة البحث من معلمي ومعلمات المرحلة الابتدائية في المنطقة الغربية (مكة المكرمة، المدينة المنورة، جدة) والذين هم على رأس العمل كمعلمي تعليم عام، ومعلمي التربية الخاصة، ومعلمي الموهوبين.
2. يجب أن يكون المعلم/ أو المعلمة لديه خبرة سنة على الأقل في مهنة التعليم.
3. يتم توزيع العينة عشوائياً بناءً على جدول التوزيع العشوائي وفق الخطوات التالية:
 - في كل مجموعة من مجموعات المعلمين (تعليم عام، موهوبين، تربية خاصة) يتم ترتيب المعلمين عددياً من ١ إلى نهاية العدد،
 - يتم اختيار المعلمين عشوائياً وفق جدول التوزيع العشوائي المرفق.
 - يتم توزيع الاستبانات عشوائياً أيضاً وفق جدول التوزيع العشوائي المرفق.
4. يكون عدد العينة والمناطق التعليمية والنماذج على النحو المكتوب في الجدول التالي:

المجموع	النموذج الأول (طالب عادي)		النموذج الثاني (توحد)		النموذج الثالث (صعوبات تعلم)		روابط الاستبيانات المنطقة	نوع المعلمين
	الاستبيان-١		الاستبيان-٢		الاستبيان-٣			
	مكة	المدينة المنورة	مكة	المدينة المنورة	مكة	المدينة المنورة		
	١٠	١٠	١٠	١٠	١٠	١٠		معلمو التعليم العام
	١٠	١٠	١٠	١٠	١٠	١٠		معلمو الموهوبين
	١٠	١٠	١٠	١٠	١٠	١٠		معلمو التربية الخاصة
المجموع	٣٠	٣٠	٣٠	٣٠	٣٠	٣٠		١٨٠

APPENDIX J
LETTER OF APPROVAL FROM MINISTRY
OF EDUCATION

Kingdom of Saudi Arabia
Ministry of Education

Ministry of Education

Planning and Development Agency

The Education Policies Research Center

Subject: Facilitate the mission of the researcher/ Amra Abdulrahman Mohammed

To His Excellency of the General Director of Education in Makkah/ Medinah/ Jeddah
Peace, mercy and blessings of God...

Below you will find three links to sample questionnaires for a doctoral student, Amra Abdulrahman Mohammed, who is studying at the University of Northern Colorado. Her thesis is titled, "The Effects of Disability Labeling on Teachers' Referrals of Twice-Exceptional Children to Gifted Programs in Saudi Arabia".

I hope that you are open to facilitating her mission.

First sample: Normal Student	https://unco.co1.qualtrics.com/jfe/form/SV_d0vLAt6a9HNMQqV
Second sample: Student with autism	https://unco.co1.qualtrics.com/jfe/form/SV_3gXLDYrLMDFZIZ7
Third sample: Student with learning disability	https://unco.co1.qualtrics.com/jfe/form/SV_6xr145mpMqxXQuV

For any inquiries, you can contact the researcher, mobile (05428886688)

Email: moha6309@bears.unco.edu

Please accept my sincere greetings and appreciation

General Director of Education Policies Research Center

Dr. Abdulrahman Bin Abdulkareem Mirza

رقم المسائل العام : 81891
عدد المرفقات : 1
التاريخ : 1440/06/09



البريد الإلكتروني : unco@unco.edu.sa
البريد الإلكتروني : unco@unco.edu.sa



81891
1440/06/09
0

وزارة التعليم
Ministry of Education



المملكة العربية السعودية
وزارة التعليم

(٢٨٠)

وكالة التخطيط والتطوير
مركز بحوث سياسات التعليم

الموضوع : تسهيل مهمة الباحثة / عمرة بنت عبدالرحمن محمد

سعادة مدير عام التعليم بمنطقة مكة المكرمة
والسلام عليكم ورحمة الله وبركاته ، ،
تجدون سعادتكم أدناه ثلاثة روابط لتماذج من الاستبانات لطالبة الدكتوراه بجامعة
شمال كولورادو / عمرة بنت عبدالرحمن محمد بعنوان تأثير رسم الإعاقة على قرارات
المعلمين بإحالة الطلاب الموهوبين من ذوي الإعاقة إلى برامج الموهوبين في المملكة العربية
السعودية .
أمل من سعادتكم التكرم بالتوجيه بتسهيل مهمتها .

https://unco.col.qualtrics.com/jfe/form/SV_d0vLAt6a9HNMQqV	النموذج الأول (طالب عادي)
https://unco.col.qualtrics.com/jfe/form/SV_3gXLDYrLMDfZIZ7	النموذج الثاني (توحد)
https://unco.col.qualtrics.com/jfe/form/SV_6xr145mpMqxXQuV	النموذج الثالث (صعوبات تعلم)

وللاستفسار يمكن الاتصال على الباحثة جوال (٠٥٤٢٨٨٦٦٨٨) .

بريد الكتروني : moha6309@bears.unco.edu

وتقبلوا وافر التحية والتقدير ، ، ،

مدير عام مركز بحوث سياسات التعليم

د. عبدالرحمن بن عبدالكريم مرزا
١٧/٧/٢٠٢٠



APPENDIX K
APPROVAL LETTER FROM DEPARTMENT
OF EDUCATION

Planning and Development Department

His Excellency the Cultural Attaché in Washington

Subject: Application approval for researcher Amra Mohammed in Makka schools

The letter (No. 5343) from the General Director of the Educational Policies Research center, dated 9/6/1440, introduced the doctoral student, Amra Abdulrahman Mohammed. She is completing her doctoral research at the University of Northern Colorado. Her thesis is titled, “The Effects of Disability Labeling on Teachers’ Referrals of Twice-Exceptional Children to Gifted Programs in Saudi Arabia”.

We are writing to inform you that we will allow the researcher to conduct her research on a sample of teachers in the schools of the General Administration of Education in Makkah. She will first need to bring the study tools to the authority in our department for examination and scrutiny.

Please accept my best regards and appreciation

God protect you and take care of you

General Director of Education in Makkah
Mohammed bin Mahdi Alharthi

الرقم: ٤٠١٨.٩٤١٩.٠٨
التاريخ: ٢٠٢٠/٦/٩
المستلمون:

المملكة العربية السعودية
وزارة التربية والتعليم
(٢٠١)
لعمارة للتربية والتعليم، بمنطقة مكة المكرمة
إدارة التخطيط والتطوير

وزارة التربية والتعليم
Ministry of Education

الموضوع: بشأن الموافقة على تطبيق
الباحة عمرة محمد بن مدارس تعليم مكة

سماعة الملحق الثقافي بواشنطن
السلام عليكم ورحمة الله وبركاته ... وبعد:

بناءً على خطاب مدير عام مركز بحوث سياسات التعليم رقم ٥٢٤٣ وتاريخ ١٤٤٠/٦/٩هـ
بشأن طالبة الدكتوراه بجامعة شمال كولورادو/ عمرة بنت عبدالرحمن محمد والتي تعد بحثاً
بعنوان:

((تأثير وسم الإعاقة على قرارات المعلمين بإحالة الطلاب الموهوبين من ذوي الإعاقة
إلى برامج الموهوبين في المملكة العربية السعودية))

نفيدكم بأنه لا مانع لدينا من استقبال الباحثة والأذن لها بتطبيق البحث على عينة من
المعلمين والمعلمات بمدارس الإدارة العامة للتعليم بمنطقة مكة المكرمة وتسهيل مهمتها ، بعد
إحضار أدوات دراستها للجهة المختصة بإدارتنا لاستكمال الإجراءات النظامية لفحصها وتدقيقها
وتقبولها هائق تحياتي و تقديري.

والله يحفظكم ويرعاكم ، ، ،

مدير عام التعليم بمنطقة
مكة المكرمة

محمد بن مهدي الحارثي

مكة المكرمة - العزيزية
٥٥٧٥٢٠٦ ف ٥٥٨٠٢٢٨ ت

APPENDIX L
INTRODUCTION LETTER FROM DEPARTMENT
OF EDUCATION

Ministry of Education

Kingdom of Saudi Arabia
Ministry of Education
General Administration of Education in Jeddah
Department of Planning & Information - Research & Studies

Facilitating a Research Mission

Name	Amra Abdulrahman Mohammed	National ID	1002591566
Mobile	0542886688	Email	moha6309@bears.unco.edu
Supervisor Agency	Jeddah University	Major	Special-Gifted Education
Degree	PhD	Study Sample	Teachers
Study Title	The Effects of Disability Labeling on Teachers' Referrals of Twice-Exceptional Children to Gifted Programs in Saudi Arabia		
Purpose	Facilitate the researcher's mission in Jeddah Schools		

To Directors of Education Office
To Directors of Special Education
From Director of Planning & Information Department

Peace, mercy and blessings of God

The General Director of the Education Policies Research Center sent a letter (No. 81895), dated 9/6/1440, which explained the researcher's mission (shown above). We hope you will aid in the researcher's mission by applying her research tool to the study's sample, according to the information in the letter.

The researcher is responsible for collecting and maintaining the confidentiality of data for scientific research purposes only.

I am thankful and appreciative of your cooperation and care.

Peace, mercy, and blessings of God

Khalil Bin Farraj AlWafi

رؤيتنا : متعلم .. معزز بدينه .. منتم لوطنه .. منتج للمعرفة .. مناض عالمياً .

" تسهيل مهمة بحث "

الإسم	عبرة عبدالرحمن صالح محمد	السجل المدني	١٠٠٢٥٩١٥٦٦
الجوال	٥٤٢٨٨٦٦٨٨	البريد الإلكتروني	moha6309@bears.unco.edu
الجهة المشرفة على البحث	جامعة جدة	التخصص	تربية خاصة وتربية الموهوبين
الدرجة العلمية	دكتوراه	عينة الدراسة	المعلمون والمعلمات
عنوان الدراسة	"تأثير وسم الإعاقة على قرارات المعلمين بإحالة الطلاب الموهوبين من ذوي الإعاقة إلى برامج الموهوبين في المملكة العربية السعودية"		
الموضوع بشأن	تسهيل مهمة الباحثة بتطبيق بحثها		

إلى : مديرو / مديرات مكاتب التعليم .

إلى : مدير / مديرة التربية الخاصة .

من : مدير إدارة التخطيط والمعلومات .

السلام عليكم ورحمة الله وبركاته ، وبعد :

بناء على خطاب مدير عام مركز بحوث سياسات التعليم رقم ٨١٨٩٥ في ١٤٤٠/٦/٩ هـ ، حول تسهيل مهمة الباحثة (الموضح بياناتها أعلاه) .

نأمل منكم تسهيل مهمة الباحثة بتطبيق أداة بحثها على عينة الدراسة ، وفق اللوائح المنظمة من خلال النماذج المرفقة في خطاب مدير عام مركز بحوث سياسات التعليم . وتوهم بأن الباحثة تتحمل مسؤولية جمع البيانات و الحفظ على سريتها لاستخدامها لأغراض البحث العلمي فقط . . . شاكركم ومقدرين تعاونكم واهتمامكم .

والسلام عليكم ورحمة الله وبركاته.

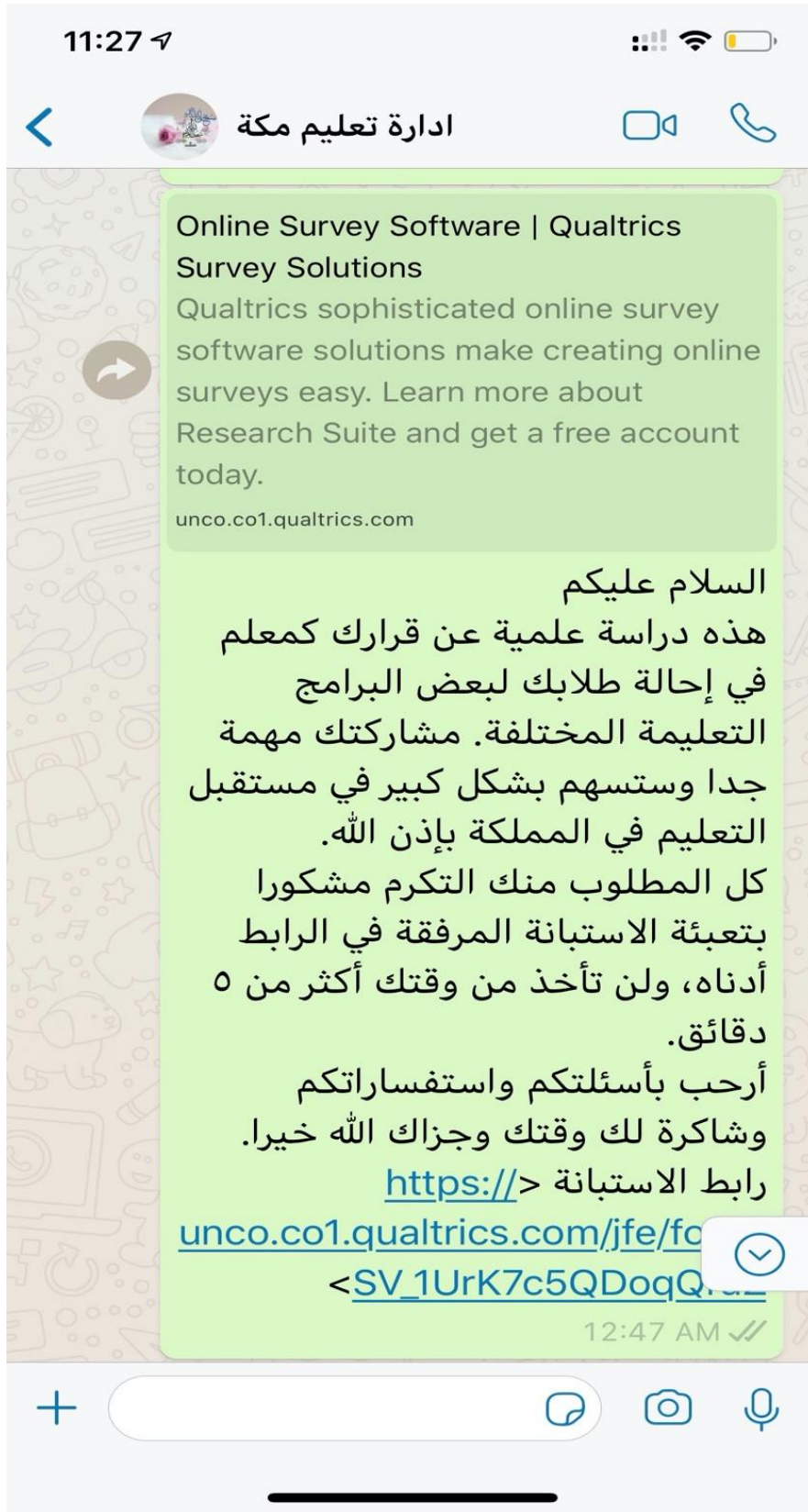
خليل بن فراج الوافي



الإصدار / ٢ التاريخ / ١٤٤٠ / ٧ / ٤ هـ رقم / ١٥ - ٢٤ - ١٥

هاتف ٦٤٤٤٣٠٥ - فاكس ٦٤٣٤٠٤٠ - الرمز البريدي : ٢١١٥٨

APPENDIX M
SURVEY DISTRIBUTION TEXT



APPENDIX N
CONSENT FORM FOR HUMAN PARTICIPANTS
IN RESEARCH



CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
UNIVERSITY OF NORTHERN COLORADO

Research Title: The Effects of Disability Labels on Teachers' Referrals of Twice-Exceptional Children to Gifted Programs in Saudi Arabia

Researcher: Amra Mohammed (School of Special Education, UNC).

Email: moha6309@bears.unco.edu

Research Advisor: Dr. Jennifer Ritchotte (School of Special Education, UNC).

Phone: (970) 351-1657 **Email:** Jennifer.Ritchotte@unco.edu

The purpose of this study is to generate information about teachers' decisions about student education. It is hoped that the findings of the current study will assist other teachers and administrators with teacher training and designing appropriate programs that are more effective in dealing with students.

You are being asked to participate in a self-reported survey. You will read a short story about a hypothesized student in your classroom and answer following questions about your decisions to refer the student to specific programs. You will rate these questions on a scale of 1 (Strongly agree) to 4 (strongly disagree). You will not be asked to provide any private identifying information such as your address, telephone, or cellphone number. The survey will be an online survey. Your email address will not be disclosed in any part of the study. However, complete confidentiality cannot be guaranteed due to the electronic nature of the data collection. The consent forms and survey data will be deleted by the end of Fall semester 2021. Participants' individual identities will not be disclosed. Completing the survey will require about 5 to 10 minutes of your time.

There is no foreseeable risk posed by answering the survey questions other than what would be encountered in a normal educational setting. However, if you face any discomfort, you are encouraged to discuss your concerns with the researcher. You may perceive some benefit from participating because it will help you better understand your students.

Participation is voluntary, so you can choose to skip any question in the survey that is uncomfortable to answer. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any

questions, please complete the survey if you would like to participate in this research. By completing the survey, you give your permission to be included in this study as a participant. You may keep this form for future reference.

If you have any concerns about your selection or treatment as a research participant, please contact Sherry May, IRB Administrator, Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

If you have any questions, please feel free to contact me on +966542886688 in Saudi Arabia or +1(970)301-6171 in USA or at moha6309@bears.unco.edu.

Participant Agreement:

Agree _____

Disagree_____

APPENDIX O
RAW DATA FOR REFERRAL REASONS

	Label Condition	Teacher Type	Strongly Agree	Agree	Disagree	Strongly Disagree
1.	Learning Disability	General Ed	The student displays many characteristics of a gifted personality, so he needs care that is offered to the gifted and talented			
2.		General Ed	His broad imagination, poor socialization, and frequent boredom are characteristics of giftedness			
3.		General Ed		Because he lacks a lot of scientific thinking and concentration skills		
4.		General Ed	The child possesses high skills in robotics and technology in general			
5.		General Ed		to nurture and develop his talent in small inventions, and to strengthen that talent he has had since childhood		
6.		General Ed		Because he has indicators of creativity		
7.		General Ed			The gifted program at this stage may be a burden on the student	
8.		General Ed		It gives everyone a chance to show their talent		
9.		General Ed	He has high skills and does not like to be dealt with in a traditional way			
10.		General Ed		To enhance the student's education		

11.		General Ed	He has talent			
12.		General Ed	He is ambitious			
13.		General Ed		So that he will receive more attention.		
14.		General Ed		Because the student will not keep up with other gifted students.		
15.		GT Ed	He needs collaboration with everyone			
16.		GT Ed	Because he shares the characteristics of other gifted students			
17.		GT Ed	He portrays qualities that qualify him for the gifted program			
18.		GT Ed	The student is referred to gifted programs because he is self- motivated to learn science. Because of his interest in science, reading and research should be used by such programs. However, his behavioral problems and poor communication with peers should be solved with the help of a guidance counselor.			
19.		Special Ed	The student has individual abilities different from other peers and therefore needs a gifted education teacher to help develop and improve those abilities			
20.		Special Ed	The child is intelligent and has a gift that needs support for a greater			

			chance to improve their abilities			
21.	Special Ed		Integrate them			
22.	Special Ed			A child being intelligent does not mean that he or she is gifted		
23.	Special Ed			To develop the student, where it was noted that he excelled		
24.	Special Ed			He is active, curious, searches for information, doesn't stick to the classroom routine, and surpasses peers in the mentioned subjects		
25.	Special Ed		I support his referral to the gifted program because he is knowledgeable in many areas and has a love for the field of robotics. Since we shouldn't link academic achievement with giftedness, we must support him and offer the appropriate services for him.			
26.	Special Ed		It is preferable to refer; because he considered as a gifted and we can work on his giftedness to develop it in the areas he loves. This will help to reduce the acuteness of the student's unideal behavior by keeping him focused on developing his talents.			
27.	Special Ed		I recommend referring the student to the gifted program because of his passion for			

			knowledge acquisition and robotics			
28.		Special Ed		Although the student has learning difficulties, his activeness indicates his giftedness.		
29.		Special Ed		Because he has signs of giftedness		
30.		Special Ed		The student is highly concentrated and has unconventional skills		
31.		Special Ed		The student is intelligent, and he is a high achiever. I expect that it will be beneficial to him to participate in the gifted program		
32.		Special Ed		He needs an individual, intensive visit to the resources room to assist with his academic activities.		
33.		Special Ed	I think he has enough skills to refer him to gifted programming.			
34.		Special Ed	He has the characteristics and traits of a gifted student			
35.		Special Ed			His interest in science is satisfied in referring him to the after-school Science Club. Also, I didn't refer him to	

					gifted programming because his personality type doesn't work well with supervision. The gifted program may make him feel like he is in a traditional classroom setting.	
36.		Special Ed	The student has a passion for science and reading			
37.		Special Ed		For his intelligence and activeness		
38.	Autism	General Ed	So his creativity and critical thinking are guided properly			
39.		General Ed	Autism student in general is a special person in terms of personal and general characteristics and is often gifted. Therefore, it is better to include him in the field of gifted students to at least help him burn off his excess physical and mental energy in a beneficial way.			
40.		General Ed	Because he is gifted and he needs to discover his talents and develop and improve them.			
41.		General Ed	He can search and apply in the field in which he is talented.			
42.		General Ed	Because when he is included with like-minded students, who perhaps share similar interests, he will develop/ improve his talents, and learn how			

			to better work with the team.			
43.	General Ed		Referring the student to the gifted program so that he can develop the skills and talents that he has. Also, the gifted programming will benefit his physical and mental activity.			
44.	General Ed		Because he has a broad imagination, loves to read, and he is a self-learner.			
45.	General Ed		The student has special abilities in computer programming, robotics, and the student also loves to learn.			
46.	General Ed		Because the student is really intelligent due to his interests in robotics and technology.			
47.	General Ed					Not gifted.
48.	General Ed		He is industrious, likes a challenge, and is determined. He hates routine and instead loves mixing things up. He also likes technology and robotics.			
49.	General Ed			Because the gifted program goes until a specific grade level, and there is no follow up with the student after that.		
50.	General Ed		It is clear from the description that the student has many characteristics of a gifted student.			
51.	General Ed			Because of his abilities and his		

			love for learning.		
52.	General Ed		The student is a thinker and creator.		
53.	General Ed				Because of the Autism
54.	General Ed		To encourage the student and develop his skills through these programs.		
55.	General Ed		Socialization is a priority for care for every student.		
56.	General Ed			Because he does not accept any guidance to develop his skills, and he makes his decisions individually.	
57.	General Ed		Not many programs.		
58.	General Ed		He can be talented.		
59.	General Ed		Perhaps he is talented, but it is not obvious in any specific subject.		
60.	General Ed				Having one side of gifted trait does not mean he is a gifted student.
61.	General Ed	Referred to develop his talent.			
62.	GT Ed		Referring the student to gifted programming based on him passing special tests.		
63.	GT Ed		There is a varied program for his condition		

			(Giftedness with Autism).		
64.	GT Ed	To foster what he have his talents.			
65.	GT Ed	To increase his self-confidence and to improve his skills.			
66.	GT Ed	To make him feel his importance, and help him realize that he possesses abilities that will make him successful			
67.	GT Ed		There is a program for special talents		
68.	GT Ed			I think he will not pass the test (Giftedness)	
69.	GT Ed	Referred to the gifted program because he is a gifted student and we need to develop his skills.			
70.	GT Ed	He obviously has gifted characters, for example, he has a vast imagination, he is a perfectionist. He is also gifted in persuading others to see his point of view, as well as debating his opinions. Finally, he believes in himself.			
71.	GT Ed	The student has gifted characteristics and excels more than his peers.			
72.	GT Ed			He has Autism.	
73.	GT Ed		He has distinctive characteristics.		
74.	GT Ed	I referred him to the gifted program to ensure that he receives specialized attention and care,			

			and to develop his skills and abilities.			
75.		GT Ed		Of course, I need him with within gifted students.		
76.		Special Ed	His elevated interest in science and high abilities in other areas.			
77.		Special Ed		Because the student is gifted, so he needs to refine his talent.		
78.		Special Ed			Because he likes to work with his hands more than he enjoys using high-level thinking skills	
79.		Special Ed		According to the description of the case, the student has talents and those must be developed. At the same time, we should not neglect his social issues, and we must help him improve his ability to adapt to situations.		
80.		Special Ed	To develop the student's abilities and intelligence.			
81.		Special Ed				No comment.
82.		Special Ed	He is a gifted student that needs nurturing to help develop his giftedness.			
83.		Special Ed	Broad imagination and interest in robotics.			
84.		Special Ed		An autistic student has different characteristics		

				than gifted students.		
85.		Special Ed		Because the student needs support to improve his existing skills.		
86.		Special Ed			Lack of proficiency of mathematics.	
87.		Special Ed	The child is gifted but needs help and someone who will understand him.			
88.		Special Ed	Because he is unique, but requires an increase in some skills.			
89.	No Label	General Ed	Has the ability to analyze, make decisions, and imagine.			
90.		General Ed		Higher thinking skills.		
91.		General Ed		Because it seems that this student is highly skilled, and needs attention, refinement, and care.		
92.		General Ed	To find care and give him more in-depth information about the science he loves.			
93.		General Ed	Based on his mental, sports, social, and physical activity.			
94.		General Ed	M.A. is more intelligent than his peers. Therefore, keeping him in the classroom may cause a decline in his academic level, or could be the beginning of him harassing his teacher and classmates, as what is given in the			

			class doesn't challenge his abilities (which causes him to feel bored, and thus start to bother others).			
95.		General Ed			I think socialization with peers will increase the students' competitiveness. If every student -who shows a talent- was referred to gifted program, then only the low- and moderate-level ability students will stay in the classroom. For example, in my experience, there was a classroom for all high-ability students and another classroom for low-level and naughty students. Because of that, the teacher's instructions were varied, based on the students' abilities.	
96.		General Ed	Because of the student's abilities in non-academic aspects.			
97.		General Ed		The student is unique, especially in activities that play to his skills, and those activities are the basics of the gifted program.		

98.	General Ed	Has talent that needs sharpening and training by specialists			
99.	General Ed	The mentioned characteristics in the student's description are characteristic of gifted students.			
100	General Ed	For the vast amount of skills that he has.			
101	General Ed	The skills in the student's personality, attitude, and interests must be fostered to reach potential.			
102	General Ed		As a first step for this gifted student, the gifted education teacher in the school, and their program, is good enough to work with this student (instead of referral him to a completely different program).		
103	General Ed		Referred because he is talented in electronic programs and robotics and can become a talented student in electronics.		
104	General Ed		Because he is gifted.		
105	General Ed		Because he is in the gifted student group.		
106	General Ed	Development.			
107	General Ed	For his ability to research science, and for his broad scientific imagination.			

108	General Ed		The student has the ability to understand the mathematics course.		
109	General Ed	Because in the gifted program there is attention/care.			
110	General Ed	His skills in programming and robotics.			
111	GT Ed	Because he is exceptional.			
112	GT Ed	The student has skills, in which some time should be invested, as well as being directed in the right direction.			
113	GT Ed	Giftedness does not necessarily translate to the level of a student's achievement. The gifted student has his own characteristics, inclinations, and his own way of expressing his opinion. Therefore, he needs support to improve his skills, inclinations, and attitude. If his achievement is close to his peers, then he deserves a chance to show his talents.			
114	GT Ed			The student is not gifted, but is active, and he believes that he is always right, and what he needs is to be involved with the community and with his peers.	
115	GT Ed	Because gifted characteristics are shown in the mentioned student. He is gifted, and			

			these talents need nurturing so that they develop.			
116		GT Ed		Because gifted programs can foster his talents in a professional manner.		
117		GT Ed	Because he shows some gifted characteristics, like enjoying exploration, reading, and his curiosity.			
118		Special Ed	The student is passionate about technology and robotics, which makes him the focus of attention in those subjects.			
119		Special Ed		In the gifted program, the teachers work hard to help the student excel, and they have the tools to make a skilled student.		
120		Special Ed		To develop his talents.		
121		Special Ed	Because he has a talent and he have the desire and love for this talent. So, we should nurture it and develop it within the student.			
122		Special Ed	He reads a lot about robotics and has a broad imagination, and such gifted programs benefit him and support him.			
123		Special Ed	His high abilities.			
124		Special Ed	For his excellence in mathematics.			
125		Special Ed		For his intelligence.		

126	Special Ed	He has a passion for science fiction and research and may invent and innovate.			
127	Special Ed	The student shows gifted attributes, interests, and a passion that predicts talent.			
128	Special Ed		He has high intelligence and a desire to sharpen his skills.		
129	Special Ed	The student has a talent and his talents must be developed			
130	Special Ed	The student is a special student, has a broad imagination, he searches for information on his own, and likes science, technology and electronics. He exceeds his peers' level in reading, which requires giving him harder challenges.			
131	Special Ed	The student needs certain teaching methods and mentoring to develop all his strengths.			
132	Special Ed		Because of his abilities.		
133	Special Ed	He is the most talented among his peers.			
134	Special Ed	Because the student has more capabilities and abilities than his peers in certain areas, so he needs care and attention to develop these abilities.			
135	Special Ed	Because he is gifted but he lacks some skills.			

136		Special Ed	His ability to learn new or innovative things (e.g., robotics).			
137		Special Ed	His intense curiosity and high academic achievement compared to his peers, and the fact that he demonstrates his enthusiasm for performing various tasks.			