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The provisions on offer for gifted learners with Autism Spectrum Disorder (ASD) in Dubai mainstream schools: capturing students and educators perspectives.

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Abstract

Gifted students with Autism Spectrum Disorder (ASD) are an underserved and under-researched population. Insufficient research has been conducted on this exceptional group of learners with an emphasis on the educational provisions that they are offered in mainstream school settings. With a geographical emphasis on the Middle East, this pragmatic, qualitative study explores the educational provisions on offer for gifted learners with ASD in Dubai mainstream schools. Furthermore, students' lived experiences and recommendations on such school provisions are captured and presented in this research. The research questions of this study are (1) what are the provisions on offer for gifted students with ASD in Dubai mainstream private primary schools? (2) how do gifted learners with ASD perceive the current offered provision in school? (3) what is recommended by gifted learners with ASD in terms of provisions offered in school? Following a qualitative research approach, semi-structured interviews, survey, and document analysis were used to obtain data. Four gifted students with ASD and six educators (including school leaders, subject teachers, and SEN teachers) took part in semi-structured interviews while twenty-one educators from a variety of Dubai schools participated in the survey. Interviews were transcribed and qualitatively analyzed using coding and thematic analysis. Findings from both the survey and interviews demonstrated insufficient and inappropriate educational structures for this group of twice-exceptional learners. Common themes from educators' interviews and survey included confusion, uncertainty, and inability to serve such students. Themes from student interviews include misidentification, feelings of frustration, and social challenges. Accordingly, recommendations on the enhancement of educational provisions are proposed as per students' and educators' responses. Finally, being the first to investigate the educational provisions of gifted learners with ASD in Dubai mainstream schools, it is hoped that this study will act as a first step towards change in the education of such exceptional learners in the country.

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Perhaps it is believed that the most important factors of conducting a thesis are intelligence, commitment, or academic skills. However, throughout this research journey I found that the affection and continuous support of those around us is what can make us achieve anything we put our minds to. For everyone else who have not been mentioned here but have somehow made this journey easier for me, thank you.

Author's declaration

I declare that, except where explicit reference is made to the contribution of others, that this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

Printed Name: Alia El Naggar

Signature:

Abbreviations & Definition of Terms

The following abbreviations and definitions are commonly used in this thesis and this list is intended to assist the reader in comprehending the concepts and terminology used in the context of this study:

- **Acceleration** - is the process in which a student advances to a higher level of academic setting due to their exceptional ability.
- **Autism Spectrum Disorder** (abbreviated as ASD) is a condition characterized by challenges in social interaction, communication, and behaviors. The definition used in this study is adopted from the DSM5 (described below).
- **Curriculum adjustments** – modifications made to a curriculum in order to meet the needs of students with different learning needs.
- **DSM5** refers to Diagnostic and Statistical Manual of Mental Disorders (5th edition) and it is the manual used by healthcare professionals in most of the world as the authoritative guide to diagnosing mental illnesses and disorders.
- **Learning disability** is a neurologically-based processing condition that interferes with cognitive functioning. In this study, learning disability is defined as the inability to learn basic school skills such as reading and writing as a result of impairments in cognitive processes.
- **Masking effect** (also referred to as the camouflaging effect) is an effect that occurs when twice-exceptional students gifted abilities are masked by their disability and vice versa.
- **Multiple intelligence** in this study is refered to as aptitudes such as creativity, leadership, problem solving, arts, social skills and academic performance adopted by Gardner (1983), Renzulli (1978) and Gagne (1992).
- **Neurodivergence** refers to difference in mental or neurological function from what is considered typical or normal (frequently used with reference to autistic spectrum disorders in this thesis).
- **Savant syndrome** – is a manifestation in which an individual with significant mental disabilities demonstrates exceptional ability in a particular domain.
- **Student of Determination (SoD).** In the UAE, a Student of Determination (SOD) is officially defined as "a student with a long-term physical, mental, intellectual, or sensory. impairment which, in interaction with various barriers, restricts the student's full and effective participation in education on an equal basis with peers of the same age".

This is the consistent terminology used throughout this thesis as it aligns with the definition understood and used by participants of this study (UAE context).

- **Twice-exceptionality** (often referred to as 2e) – the occurrence of a learning disability co-existing with exceptional giftedness (as per the definition of Barber & Mueller (2011).

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Autism Spectrum Disorder (ASD) can be defined as a cognitive developmental disorder, which occurs during the first three years of a child's life, resulting in significant issues with communication skills, social interaction, and various other behavioural challenges (Volker & Lopata, 2008). Throughout the past three decades, ASD has been studied extensively by academic researchers, healthcare professionals, and even governmental authorities. Their research has revealed that ASD is significantly different to other childhood disorders because it varies across a spectrum, in which individuals face a range of challenges with different aspects of life and exhibit behavioural challenges at varying levels of severity (Moretz et al., 2007). Crucially, this means that two individuals with ASD may experience and display completely opposing characteristics and behaviours, which makes it difficult to accurately identify, diagnose and provide adequate support to them. As a result of this complexity, autism has over the past decades been redefined, and redescribed using contested definitions among scholars, researchers, and professionals. For this reason, there is a combination of terminologies used in this thesis depicting autism through different lenses. This is discussed further in section 2.1

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) categorises the 'degrees' of autism into three distinct levels: (a) level 1 - requiring support, (b) level 2 - requiring substantial support, and (c) level 3 - requiring very substantial support. The differences in these categories represent a variety of characteristics, which are experienced and exhibited by individuals on the spectrum (Sturmey & Dalfen, 2014). Due to this extensive range, authority figures have faced notable challenges when proposing suitable inclusion strategies, adequate support and intervention techniques for such individuals. Indeed, numerous studies have demonstrated the difficulties educators experience when attempting to support children with ASD within the context of schools (Jung & Lee, 2020; Syriopoulou-Delli et al., 2012; Lindsay et al., 2014). For example, Rodríguez et al. (2012) found that school teachers reported having ASD students, who struggled immensely

in social settings, and were unable to maintain friendships; however, they were excelling academically in certain subjects more than their peers. This finding was consistent with other studies which examined the cognitive abilities of children with ASD and noted their exceptional performance on Intelligence Quotient (IQ) tests (Duncan & Bishop, 2015).

Carpenter et al. (2009) argue that although many ASD students lack social interaction skills, they commonly exhibit high levels of IQ that helps them to excel in subject-specific areas. This paradox of two exceptionalities is a rare combination that has in recent years been examined and become known as 'twice-exceptionality' (Ronksley-Pavia, 2015), or also referred to as 'multi-exceptionality' recognising that an individual may exhibit more than two exceptionalities (Neihart, 2008). Twice-exceptional (or multi-exceptional) students have been identified as learners who are diagnosed with a learning disability (such as ASD) and simultaneously fit the definition of a gifted learner (Barber & Mueller, 2011). Such students tend to exhibit exceptional giftedness in various domains (such as academic subjects, arts and music); however, they concurrently display a learning disability that causes challenges in social contexts (Jacobs, 2012). 6

In order to truly comprehend the concept of twice-exceptional students, it is necessary to begin by defining the term 'giftedness'; a term which has been defined in a variety of ways by numerous scholars throughout the 20th Century (Krochak & Ryan, 2007). Initially, a psychometric approach (Terman, 1920) was used to measure giftedness with the use of intelligence test scores; thereafter, a multidimensional approach was adopted (Gardner, 1983; Renzulli, 1978; Gagne, 1992, Sternberg, 2000) where giftedness was thought to be manifested in various domains such as creativity, arts, and music. Although the field of giftedness has been explored extensively, there has been no consensus on its definition, particularly when described in the context of schools.

Located in the United States of America (USA), the National Association for Gifted Children (2011) defines gifted learners as "*an individual who displays exceptional ability or competence in one or more domains*". On one hand, this is a simple and comprehensible description; however,

on the other hand, it does not explain how ability and competence are measured, nor how 'exceptional' is defined. Although the theories proposed in the literature to define giftedness have added significant value to the comprehension of this term, Wallace et al. (2018) conclude that giftedness is a complex concept in which a number of distinctive factors, such as social skills and cultural values, ought to be considered. They explained that giftedness could not possibly be defined in an explicit manner without the consideration of specific research goals and cultural context.

Following this complexity in defining what constitutes 'giftedness', the term 'twice-exceptional' (i.e. gifted with a disability) has also not been consensually defined to date. The term itself, however, refers to the two exceptionalities manifested by such students in both giftedness and disability (Ronksley-Pavia, 2015). Notably, twice-exceptionality is a relatively under-investigated area of study; and although there has been an increase in research about this phenomenon (Foley Nicpon et al., 2011), the literature still lacks sufficient studies offering 'best practices' for such students, in particular for gifted learners with ASD (Francis et al., 2016). Having said that, the existing research on ASD students with exceptional abilities has highlighted a range of problems with the identification, practices, and experiences of such students in school (Karnes et al., 2009). To address this issue, this thesis relies only on theories that are applicable to both autism and giftedness. The presented theories in this study have been selected as they are successful in explaining giftedness with the co-ocurring existence of autism.

In a mainstream educational setting, Brody & Mills, (1997) argue that teachers tend to focus on the non-conventional behaviour of ASD students, instead of paying attention to their strengths. It could be argued that this lack of attention to exceptional talents, abilities and interests may contribute towards the social and emotional challenges that gifted learners with ASD face (Bianco et al., 2009). For example, a child with ASD may appear to be disruptive during class, which could be perceived by a teacher as being a rude or naughty character flaw. In this case, the disability of such students masks the giftedness (referred to as the masking effect), and teachers are more prone to address such maladaptive behaviours while disregarding their gifted potential (Bianco et al.,

2009). Conversely, the masking effect can also be observed in students who predominantly exhibit 'gifted traits' while being able to manage their socially challenging behaviour. In this case, it is not uncommon for educators to overlook the student's socio-emotional needs while addressing only their unique abilities. This not only leads to negative experiences for such students but also to the exclusion of these exceptional learners in either special education programmes or gifted programmes. Emphasising the importance of this, many scholars (Goleman, 2006; Renzulli & D'Souza, 2012; Renzulli et al., 2006) have added as a novel notion to the field of giftedness that the goal in gifted education is not merely to challenge this group of students but also to create a drive for change and improvement in the world. Consequently, the examination of giftedness in learners with ASD is a research priority globally and in particularly within under-researched regions such as the Middle East and North Africa (MENA). Thus, this study addresses twice-exceptional students who are diagnosed with ASD and identified as gifted in the United Arab Emirates (UAE) school context.

The UAE is a country that, despite its relatively young age, has managed to attract the world's attention due to its exceptional development in several sectors within the Middle East. However, when it comes to the education system, recent reforms reveal the extent to which this nation is eager to compete on that front (Bradshaw et al., 2004; Younis, 2020). Arguably, utilising the minds and abilities of its gifted young citizens could be an asset for economic growth; however, the complexity of educating intelligent minds that are coupled with a disability is very challenging, especially because most related research simply explores gifted education in general (Coleman & Cross, 2001; Colangelo & Davis, 2002). Moreover, MENA-based literature, particularly in the UAE, lacks meaningful investigations into this specific research area, bar a few basic attempts to look at giftedness and talent (Ismail et al., 2022; Mohamed, 2006; Al Ghawi, 2017), although these failed to consider learners who are differently abled in general, let alone students with ASD. Therefore, this study aims to address this research gap by examining the provisions on offer in the Emirati mainstream education system for gifted learners with ASD, while capturing student voices and perceptions of their school experiences and provisions offered.

1.2 The Education System of the UAE

The UAE consists of seven emirates (Abu Dhabi, Dubai, Sharjah, Ras al Khaimah, Fujairah, Ajman and Umm al Quwain) all of which have both private and public schools (Gaad et al., 2006). As a country, the education system is governed by the Ministry of Education. However, certain Emirates such as Dubai, Abu Dhabi and Sharjah follow a local education authority that sets out different regulations. In Dubai, for instance, the Knowledge and Human Development Authority (KHDA) is the local education body, followed by private schools. While the Ministry of Education oversees and monitors public schools, the KHDA inspects and rates private schools based on a set of educational standards set out by the authority (United Arab Emirates Government, 2019a). Due to the multinational and multicultural population, which inhabits the UAE, the country consists of different international curricula, including British and American systems (being some of the most common ones), the French system, the Indian education system (CBSE), and the International Baccalaureate (Gaad, et al., 2006).

According to Matsumoto (2019), the UAE considers education a national priority, consequently, it continuously works toward educational reforms and developments. The country aimed to establish a first-rate education system as part of the national agenda and UAE vision for 2017-2021 (MOE, 2017). Additionally, the UAE aspires to convert Dubai into an inclusive city by 2040, ensuring inclusive practices in healthcare, education, and the overall community. As a result, continuous transformations take place in educational practices and processes in the UAE, based both on the guidelines of the Ministry of Education as well as the KHDA. A significant part of these reforms is based on the equal rights of all students for education and equity, regardless of differences in nationality, gender, religion and learning needs. Equity in education is articulated in many of the educational frameworks set out by the KHDA and the Ministry of Education. Specifically, the KHDA has released a number of guides, protocols, and policies for schools to follow in the education of students with special needs, who are now referred to as 'Students of Determination' (SoD) in the UAE. These documents are based on students' rights for the appropriate provision of programs, adapted for their individual abilities and needs, including:

- The Dubai Inclusive Education Policy Framework (KHDA, 2017),

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- Implementing Inclusive Education: A Guide for Schools (KHDA, 2019),

- A guide to inclusive education (KHDA, 2019),

- Directives and guidelines for inclusive education (KHDA, 2019),

- School-Home Provision: A collaborative approach to distance learning for Students of Determination (KHDA, 2020),

- Advocating for Inclusive Education: A guide for parents (KHDA, 2021).

'Gifted Education' in Dubai is considered one category of the inclusive education framework, which is articulated in the Dubai Inclusive Education Policy Framework (KHDA, 2017), under a section that defines gifted students and proposes educational programs to meet the needs of this group of learners. In addition, the UAE considers 'talents' as one of its main pillars for growth and economic prosperity (United Arab Emirates Government, 2019a). Therefore, gifted education specifically is recognised by the educational authorities as a foundation for reforms and developments in society. While the KHDA works towards a holistic framework for inclusive education (KHDA, 2017), the Hamdan Foundation for Global Talent Mentoring, which is a governmental organisation founded by H.H. Shaikh Hamdan bin Rashid Al Maktoum, works alongside the Ministry of Education to enhance and improve gifted education in the country (Hamdan Awards 2019).

1.3 Problem statement

Considering the country was only formed in the 1950s, the UAE is undeniably new. Having said that, it has developed into one of the most fast-growing countries in multiple sectors, including tourism, health, technology, and even education (Abed & Hellyer, 2001, Ahmed and Alfaki, 2013; Almezaini, 2013). With all the reforms that have taken place over the years, education in the UAE remains a top priority; indeed, H. H. Sheikh Zayed Bin Sultan Al Nahyan, the founder of the UAE, strongly believed in the importance of education and stated that education "is the way forward to create an inclusive and prosperous society" (Education in the UAE, 2022).

Despite the extensive efforts of the UAE to cater to the needs of all students and develop an inclusive framework for all, one category of students remains unrecognised in the Emirati education system, namely twice-exceptional students. Notably, numerous studies (McCoach & Siegle 2003; Silverman 2002) have demonstrated that the prevalence of gifted individuals who are also diagnosed with a disability range between 5% to 10%. However, Abi Villanueva, and Huber (2019) argue that such numbers are difficult to verify due to the inadequate and inappropriate identification of twice-exceptional individuals. Such under-identification could lead to the negligence of developing a student's true abilities if the focus is merely on the disability. Similarly, a student is at risk of losing the appropriate socio-emotional provision if the emphasis is purely on the giftedness and advanced abilities (Jeweler et al., 2008). Ultimately, this group of learners are at a higher risk than their peers of underachievement in school due to the insufficient understanding of their educational, emotional, and social needs (Yssel et al., 2010).

This risk is especially true within the context of the UAE, as there is an evident lack of official guidance on the education of twice-exceptional learners. Despite official protocols circulated by both the MOE and the KHDA in Dubai that evidently mentions gifted education as well as special education (with a highlight on ASD), none mention students who exhibit giftedness accompanied by ASD or any other disability for that matter. With the increasing number of diagnoses of students with ASD worldwide, authorities are now taking steps to accommodate the needs of autistic students, providing evidence-based provisions and support (Maurizio et al., 2022) for this group of learners. However, there is predominantly a focus on students' hurdles, challenges and areas of need, rather than students' strengths and potential talents, which are often overlooked. As a result, such students go unidentified, neglected, and misdiagnosed, and ultimately find themselves in inappropriate educational settings with a lack of relevant provisions (Gilman, et al., 2013).

Unfortunately, research indicates that twice-exceptional students are not only challenged by their own unique learning needs, but they often face marginalisation by decision-makers and educators (Leggett, 2010). As the education system is shaped by policymakers and educators, it is essential

to shed light on the existence of this underrepresented group of learners and the type of support systems that may cater for their needs. Within the context of the UAE, this is particularly important to align with the UAE Vision 2021, which has set one of its six national priorities as a first-rate education system.

1.4 Rationale & Significance of the study

The rationale for investigating this particular research topic was primarily based on three motives. Firstly, the researcher is a passionate advocate for People of Determination (PoD), and personally noticed there were insufficient investigations that have been conducted on the topic of gifted students with ASD, particularly in school settings. While reviewing the literature, the researcher found limited research conducted on this topic, both on a global scale as well as on a national level (related to the UAE, where this study was conducted). Furthermore, although some studies were available in the literature addressing twice-exceptionality in school settings, none of these captured the student voices of those on the autism spectrum. Figure 1.1 displays a visual representation of the amount of available research conducted on the research topic. As apparent from the figure, the literature presents a significant amount of research on twice-exceptionality, while this amount decreased when narrowing down the topic with an emphasis on autism and more so on the voices of autistic students in the mainstream school setting who are also identified as gifted.

Twice-exceptionality

Autism and Gifted

Voice of Autism + Gifted

Voice about school
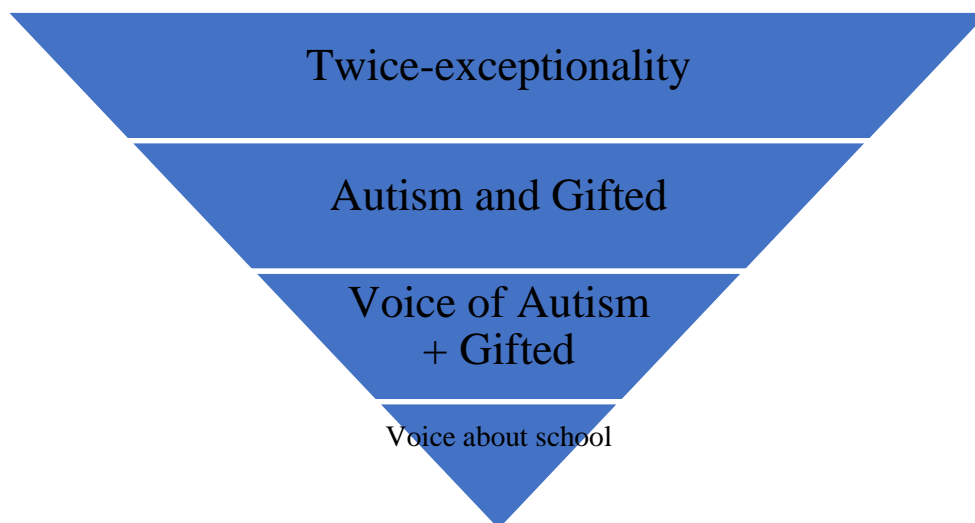
Figure 1. 1 A visual representation of available literature on the research topic

Having reviewed literature from across the globe, the researcher did not locate any studies that captured students' perspectives, representing the target population under investigation. Moreover, only a limited number of studies (Cain et al., 2019; Montgomery, 2015; Leggett, et al., 2010; Bianco, et al., 2009; Baum, et al., 2001) have examined the provisions offered for gifted learners with ASD in mainstream school settings. Thus, it comes as no surprise to find insufficient research on this topic in the Middle East North Africa (MENA) region, and specifically the UAE. Despite some initial attempts to look at giftedness and talent in the Middle East region (Albaili, 2010; Mohamed, 2006; Al Ghawi, 2017), such studies did not consider learners who are gifted with a disability in general, nor those with ASD.

Similarly, a number of studies have been conducted within the region examining the inclusion of students with autism (Elhoweris and Efthymiou, 2020; Kelly et al., 2016; Gaad, 2010), however, none of them have explored giftedness. Thus, this research intends to shed light on a separate category of students, who exhibit traits of both giftedness and ASD, possessing unique learning needs in terms of identification, intervention, individualisation, and support (Yssel et al., 2010). Considering the political and social circumstances of the Middle East, this is very important because vulnerable learners are not typically considered a research priority (Dwairy, 2004); therefore, the researcher is taking an initial step, which may pave the way for fellow researchers to further investigate this topic within the MENA region.

The second rationale for conducting this study is founded on the principles of the social justice model (Zajda et al., 2006; Carpenter, 2013), which are (1) access to resources, (2) equity, (3) diversity, (4) participation, and (5) human rights (Jaeger et al., 2015). The social justice model plays an essential role in realising the UAE 2021 Vision to make the UAE among the best countries in the world by the Golden Jubilee of the Union. Dubai's education sector must fulfil the needs of this group of under-represented learners in order to align with the national vision of becoming an inclusive city (United Arab Emirates Government, 2019b). While the Special Education

Department of the country considers gifted learners and learners with a disability as recognised categories of students with specific learning needs (Bradshaw et al., (2004), it is yet to develop laws and policies, which support the education of learners who exhibit both exceptionalities. Recognising the outstanding developments done in the country in the education sector, it is important for the UAE to place emphasis on the enhancements of educational standards of inclusive education, with a specific focus on this group of exceptional learners. In addition, as this research examines the educational provisions on offer for gifted students with ASD in Dubai mainstream schools, it describes existing support systems in place, as well as educators and school leaders' awareness and knowledge of twice-exceptionality. Furthermore, one unique element of this research is the presentation of student voices, their perspectives, and recommendations on educational provisions. Thus, this study aims to act as a first step towards addressing one overlooked aspect of education that is hoped to ultimately act as support in the country's vision of achieving a first-rate education system.

In relation to the previous point, the third rationale for conducting this study was to acknowledge and share the voices of this group of exceptional learners. Data is collected directly from the students about their lived school experiences from a wide range of aspects, including academic, social, and emotional viewpoints. Considering the lack of research that has been conducted capturing the autistic student's voice (Danker et al., 2019), this research will be of significant value to both researchers and decision-makers in the field on a global scale. Seeing as students' voices can offer insight into issues that may be overlooked by educators and professionals (Danker et al., 2019; Ferguson et al., 2011) this research aims to reveal their perspectives, adding new knowledge to the existing body of literature. Thus, this research will contribute to both practical and theoretical information in regard to gifted students with ASD in the mainstream education system that may be adopted by the UAE education sector towards creating a change and preparing schools for the appropriate inclusion of such exceptional students. As a final note, the UAE would like every individual citizen and resident to contribute to the development of its society; hence this study aims to pave the way for change in the education system, which may assist in identifying such potential.

1.5 Research objectives and research questions

To date, there has been no previous research conducted on this topic in the UAE; therefore, this study aims to fill the research gap of existing literature by examining the provisions on offer for gifted learners with ASD in the UAE's mainstream education system. It is targeted at decision-makers, educators, and stakeholders responsible for the education of gifted students with ASD and, moreover, twice-exceptional students in general. Due to their unique nature, the literature has demonstrated that this group of learners are under-identified, which means they are underserved in mainstream education systems (Stillman, 2018). Thus, this research aims to address educational authorities in the country to shed light on an underserved group of learners that have for too long been overlooked in the education system. This is important for students' legal rights and entitlement to appropriate educational provisions (Roleska et al., 2018), and because such individuals can play a significant role in the contribution of the country's development in a variety of sectors (Srivastava et al., 2015).

The primary research objective of this study is to determine the existing, available provisions on offer for gifted students with ASD in Dubai mainstream schools. This includes academic provisions, socio-emotional support, and currently adopted policies followed by schools. The second research objective of this study is to share the perspectives and lived experiences of this group of learners by presenting their voices on the educational provisions offered at their respective schools and their recommendations for improvements. Essentially this means that this study will propose recommendations for best practice principles for supporting such learners in a mainstream school context, from their own point of views. The final research objective is to explore educators' experiences and viewpoints on teaching this group of learners. On a final note, this research will shed light on the emotional well-being and mental health implications of this group of learners.

A further important aim of this study is to raise awareness about this group of exceptional students, who tend to be unnoticed and inadequately served in school due to their apparent traits of giftedness or autism. Therefore, by examining the investigated topic, this study intends to act as a drive for change, both within the context of their schools, and indeed the wider society. This step

towards change may act as a foundation for the establishment of a meaningful strategy, which could ensure that the needs of these exceptional learners are met in the mainstream school setting. Ultimately, this study aims to pave the way for fellow researchers to tap into this unique and under-researched area in this part of the world, at a time when this country needs all the talent of its relatively small population. Based upon the research objectives and problem statement of this study, the research questions are:

- RQ1: What are the provisions on offer for gifted students with ASD in Dubai mainstream private schools?

- RQ2 How do gifted learners with ASD perceive the currently offered provision in school?

- RQ3: What is recommended by gifted learners with ASD in terms of provisions offered in school?

1.6 Focus of study

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), people diagnosed with ASD exhibit two main characteristics that may be manifested in a variety of ways. These are:

1) Social communication challenges, which often come in the form of language difficulties, atypical face expressions, difficulty developing friendships, and impaired theory of mind (Loukusa et al., 2014),

2) Restricted interests and repetitive behaviours, which may include repetitive speech of the same topic, need for predictability and 'sameness', repetitive behaviours, and most commonly, sensory sensitivities (Turner, 1999; Lewis, & Kim, 2009).

Due to this wide-ranging spectrum, the characteristics of individuals on the autism spectrum vary greatly in type and severity from one person to another (Lord et al., 2020). Whereas some autistic individuals may struggle significantly with language development, for example, others may

possess significantly higher language abilities compared to their age-related peers. Likewise, some individuals on the spectrum may exhibit no sensory sensitivities at all, yet they display severe distress in a change of routine. Consequently, it is important to take these differences into consideration when researching this topic because such vast individual differences may impact the validity and outcomes of the study (Pallier et al., 2002).

As stated earlier, one of the main aims behind this study was the collection of data from students themselves about their own lived experiences in a mainstream school context, and to add this to the existing body of literature. Accordingly, this research only icluded autistic individuals with high (expressive) language abilities, in order to ensure sufficient and rich data on student perspectives were collected. Furthermore, in terms of students' abilities, this study distinguished between 'savant ability' and 'giftedness'.

'Savant abilities' can be defined as individuals diagnosed with ASD, who achieve an IQ score of 70 or below, yet demonstrate exceptional ability in one specific domain (Heaton, 2013). Such cases have been reported as being on the 'severe end' of the autism spectrum, often incapable of basic life skills such as communication, self-help, and management of extreme sensory sensitivities (Siegel, 2018; Loukusa, 2021). Such individuals are referred to as 'autistic savants', they do not attend mainstream schools and are often segregated in clinics and centres for individualised intervention (Heaton, 2013). As a result of their limited (or non-existent) expressive language skills, as well as their exclusion from mainstream schools, this study did not include autistic savants; rather, it focussed on gifted learners with ASD currently enrolled in a mainstream school. Such gifted learners are, for the purpose of this study, referred to as those diagnosed with ASD and display an above-average IQ of 80 or more. These individuals display characteristics of ASD, such as challenges in social interaction, language, and sensory sensitivities, while also exhibiting outstanding abilities in various domains, particularly in academic subjects such as maths, science, and language (Al-Hroub, 2014; Assouline et al., 2010). Students such as these are those that tend to go unnoticed in schools due to the masking effect and their 'hidden disability' (Foley-Nicpon et al., 2021).

Another notable point is that this study is only conducted within the context of private schools in Dubai, which are rated as 'Outstanding' and 'Very Good' by the KHDA's school ranking system. This is because they commit to the fulfilment of the inclusive education framework, which is set out by the KHDA for schools to follow as a guiding protocol. Furthermore, in terms of the logistics and accessibility into Dubai-based schools, it was more convenient and feasible to target schools that presumably follow the 'best practices' in inclusive education.

1.7 Organisation of study

This thesis is divided into the following six chapters:

Chapter one: 'Introduction' introduces the research topic, presents background information and a clear problem statement about the topic under investigation. This chapter presents the aims, objectives, and rationale of the research. It sets the scene for the education of gifted learners with ASD in Dubai mainstream schools, emphasising the students' voice.

Chapter two: 'Literature Review' presents a detailed review of literature about twice-exceptional students with an emphasis on learners with ASD. In this chapter, relevant theories, models, and studies pertaining to autism and giftedness are presented in order to provide a synthesis for the twice-exceptional student and set the theoretical context of the research. Moreover, the literature review explores global conceptualisations of giftedness and the application of these in the education of learners diagnosed with ASD. Teaching strategies such as differentiation, acceleration and grouping are discussed in relation to addressing the needs of gifted students, while other strategies such as visual aids, extra time, and predictability are presented in relation to supporting autistic learners in the classroom setting. The chapter ends by presenting educational strategies and frameworks, which could work in ways that would best meet the needs of the gifted student with ASD in school.

Chapter three: 'education context in the UAE' synthesises the issues discussed in the literature review chapter with an emphasis on the UAE context. It presents a history of the education system in the UAE with a focus on educational reforms that have taken place throughout the past decades. The chapter discusses gifted education, in addition to special education programs in the UAE. It ends with a presentation on the current provisions on offer for gifted students with ASD in the Dubai mainstream school setting.

Chapter four: 'Methodology' presents and justifies the research methodology adopted for this study. Research approach, data collection, transcription, data analysis, and ethical considerations are discussed to demonstrate the alignment of these with the research questions and objectives. Furthermore, this chapter includes a detailed discussion on the measures taken to ensure trustworthiness of the study.

Chapter five: 'Results' presents the outcomes and findings of the semi-structured interviews and survey. This chapter discusses the provisions offered for gifted learners with ASD in Dubai mainstream schools, students' perspectives on such provisions, and finally, students' recommendations for educational enhancements. One significant aspect of the findings emphasises the challenges in the identification of this group of twice-exceptional learners and its impact on both students and educators.

Chapter six: 'Discussion and Conclusion' of this thesis draws final conclusions from the research conducted. Discussions are presented on the possible interpretations and analysis of the findings of the study in relation to each theme presented in chapter five. This chapter also presents the contribution of the research to knowledge, implications for policymakers and educational practitioners in the UAE, as well as recommendations for future research. It ends with a personal reflection on the PhD journey of the researcher.

CHAPTER TWO: LITERATURE REVIEW

2.1 Autism Spectrum Disorder

As a result of the complexity of understanding and identifying autism, autism has over the past decades been redefined, and redescribed using contested definitions among scholars, researchers and professionals. Starting with the medical definition viewing autism as a 'deficit' or 'impairment', terminologies have over time changed to addressing autism as a neurological difference (also referred to as neurodivergence). For this reason, there is a combination of terminologies used in this thesis depicting autism through different lenses. Despite that the researcher opts for the term 'neurodivergent' over 'impairment', certain sections of this thesis describe autism through medical definitions such as 'deficits', 'impairments', and 'deficiencies'. This is as these terminologies are adopted and used by certain autism theories/authors used in this study, educational authorities in the UAE, and the DSM-5. Yet, the researcher opted for the term "neurodivergent" over "impairment" as it recognizes that people with neurological differences have distinctive skills and abilities that differ from the neurotypical community. The word "impairment" holds a negative connotation and implies that the person is inadequate or flawed. The word "neurodivergent" on the other hand acknowledges that neurological variances exist on a spectrum and that these differences can provide people distinct views and talents, as is particularly the case with gifted students with ASD. Rather than classifying individuals based on their perceived limitations, the researcher aims to promote inclusivity and respect for difference by adopting the term "neurodivergent".

The identification of Autism Spectrum Disorder (ASD) was initially recognised and officially delineated by Leo Kanner in 1943 and Hans Asperger in 1944, when both observed several "strange" features in groups of children under examination (Frith, 2003; Peters & Matson, 2019). These observed features were shared across the groups and included social isolation, desire for routine, stereotypical behaviours, and difficulty with understanding emotions (Wolff, 2004). Based on their findings, both pioneers adopted the term 'autistic', however, Asperger syndrome was later classified as the milder end of the autism spectrum due to its lack of language delay and

overall milder symptoms present in the child compared to classic autism (Frith, 2003; Gamlin, 2017; Happe, 2011). Due to its complex nature, autism remains an intriguing research topic that has been extensively examined among scholars with several theories and models aiming to explain the nature of ASD, its symptoms, and causes (Wolff, 2004; De Rubeis & Buxbaum, 2015). Starting back in 1979, Wing and Gould proposed the 'triad model of autism', suggesting that people on the autism spectrum have a triad of impairments which include social interaction, communication and imagination (Rutter, 2013). With further modifications, the triad model of autism has over time been refined to include impairments in social interaction, communication, and repetitive behaviours (Boomsma et al., 2008; Cored Bandrés et al., 2022).

The perplexing nature of autism derives not only from its features but also from its wide spectrum in which individuals exhibit varying levels of behavioural manifestations. The word 'spectrum' in Autism Spectrum Disorder signifies the varying ranges in which a person is diagnosed, starting from a very mild degree, previously referred to as 'High Functioning Autism' (HFA) (Gillberg & Ehlers, 1998) to a more severe degree, referred to as Low Functioning Autism (Lai et al., 2011). However, with updates to the terminologies used for labeling and diagnosing autism, such terminologies are no longer utilised and have been significantly updated in the latest version of the 5th edition of the Diagnostic and Statistical Manual (DSM-5), which is a diagnostic tool published by the American Psychiatric Association (APA) for healthcare professionals to use for psychiatric and psychological diagnoses (Guha, 2014). In this version, which was published in 2013, the autism spectrum is divided into three levels based on the individual's required degree of support. Individuals classified as level one are those 'requiring support' and typically exhibit no major language or academic delays, but may demonstrate difficulty in initiating social interactions and whose attempts to make friends seem odd or unsuccessful (Sturmey & Dalfen, 2014). Individuals in level two 'require substantial support' and often exhibit notable deficiencies in verbal and nonverbal social communication skills; for example, individuals who speak basic sentences, display odd nonverbal communication and show narrow special interests (Frazier et al., 2012). Level three are individuals classified as 'requiring very substantial support'; which means that they exhibit significant challenges in both verbal and nonverbal social communication skills, extremely limited initiation of social interactions and challenges in overall functioning (Mandy et al., 2012; Frazier et al., 2012).

The range of characteristics and varying degrees of behavioral manifestations in individuals on the autism spectrum have for years baffled healthcare professionals, educators, and specialists. Unlike syndromes where most characteristics of children are presented in the same manner, autism presents itself in many different forms (Hodges et al., 2020; Swanson et al., 2014). For example, a child who displays significant language delays may demonstrate exceptional ability in the domain of arts or math, while another child who demonstrates above average intelligence may struggle with significant sensory sensitivities or social understanding. As a result, children on the autism spectrum are more vulnerable and more likely to be misunderstood specifically by educators in the mainstream school environment (Chamberlain et al., 2007). This phenomenon has been observed in numerous studies (Sharma et al., 2011; Christopher, 2009; Mayes & Calhoun, 2003) in which individuals diagnosed with a 'milder form' of ASD demonstrated an average or above average IQ and exhibited the ability to 'blend in' by imitating peers without truly comprehending the social context. This is referred to as the 'masking effect', which involves suppression of certain behaviors and mimicking of other behaviors of those around them to better fit into certain social circles or situations (Crowe & Salt, 2015). The masking effect can also manifest itself in another form, namely where autism masks giftedness. In such cases, the student may exhibit certain autistic features (such as unusal eye contact, social difficulties, and out-of-context behaviors) that often 'suppresses' and masks their gifted abilities (Christopher, 2009). In other words, the masking effect is a phenomenon where the strengths of twice-exceptional students can conceal their learning challenges, or where their learning challenges can conceal their strengths, in both cases leading to under-identification and under-servicing in educational settings (Rubenstein et al., 2015).

There are several factors that contribute to the masking effect in 2e students. First, the exceptional abilities of 2e students can be so impressive that their challenges are dismissed or overlooked. Educators may assume that a student who excels in one area must be performing well in all areas, leading them to miss signs of a learning difference or disability (Crowe & Salt, 2015). Second, 2e students may exhibit significantly bizarre or disruptive behaviors, leading educators to misjudge the student or overlook their abilities (Assouline et al., 2006). Third, some 2e students develop compensatory strategies to cope with their challenges, making it harder to

identify their underlying difficulties (Neihart, 2000). As a result of this masking effect, these children may go unnoticed by teachers and peers, resulting in equal expectations being placed on them as their peers (academically, socially, and emotionally), which may cause a lack of the required individualised support and provision. Rubenstein et al. (2015) argued that such students may even exhibit gifted potential and talent that is overlooked due to their social, emotional and academic struggles. Conversely, students exhibiting the more extreme behaviours on the severe end of the autism spectrum are more 'identifiable' in school settings and therefore more likely to receive the appropriate support (McClean & Grey, 2012). This discrepancy in behavioural manifestations of two individuals on the autism spectrum will naturally lead to differentiated forms of education and intervention, where one student may receive the emotional, social and academic support necessary while the other facing identical socio-emotional challenges is expected to get by on their own. It is therefore not uncommon that students with a milder form of ASD have their needs, as well as exceptional potential, completely overlooked in school (Jahromi et al., 2021).

Due to this perplexing nature of autism, in recent years, there has been extensive examination into the onset of autism in early years and the criteria for diagnosis. Although it was previously established that symptoms of ASD emerge in the first three years of life, some researchers (Reiersen, 2017; Duncan et al., 2018; Matson et al., 2008) have agreed that the time of diagnosis may be established much later than the onset of symptoms, due to difficulties in detecting early signs of ASD, specifically ones on the milder spectrum. This is also supported by the fact that individuals with a milder form of ASD or 'Asperger syndrome' (as it was previously referred to), are often diagnosed as adolescents or adults, since the identification of symptoms are more evident when requirements for social interaction increases with age (Barnevik Olsson et al., 2016). Unfortunately, this means that many children with ASD in the early school age go unidentified, struggling with adapting in the school environment with constant changes, transitions and tremendous sensory stimulation, all of which may cause distress and lead to bizarre behavioural manifestations (Waddington & Reed, 2017; Hedges et al., 2014). Naturally, such peculiar behaviours may lead school professionals to focus on the disability rather than the

ability of those on the autism spectrum, again, disregarding potential that may foster giftedness, and ultimately add significant societal value.

2.1.1 Diagnosing Autism

In the DSM-5 (2013), autism is identifiable by observing persistent social communication problems across various settings, as well as repetitive, restricted behaviours. Social communication deficits are characterised by problems with social initiation and response, reduced sharing of emotions and interests, failure of back-and-forth conversation and poor social imitation. Due to their socio-emotional challenges, people on the autism spectrum struggle to express their emotions appropriately, such as an inability to share joy or interest, which ultimately may lead to the inaccurate inference that autistic individuals do not comprehend emotions (Cheon et al., 2016). Moreover, failure to respond to praise, excitement and responsive social smiling is another reason that ASD has been characterised by aloofness and social withdrawal (Carpenter, 2013). These social deviances often lead to challenges in daily life events where any form of social interaction is required; additionally, due to their limited sharing of interest with others, individuals with ASD often have difficulty forming friendships, and are perceived as difficult to connect with by peers of a young school age (Campbell & Barger, 2014).

While autism is greatly characterised by social-emotional challenges, key areas that impacts individuals on the autism spectrum are spoken language, verbal as well as non-verbal communication. Spoken language is often characterised by pedantic speech, echolalia (immediate or delayed repetition of words), idiosyncratic, and preservative language (Carpenter, 2013); while non-verbal communication such eye contact and body language is often expressed and comprehended in an unsual manner (Chiang et al., 2008). This difficulty in comprehending or using verbal and non-verbal communication often causes misinterpretation about the meaning of spoken language, which have proven to lead to frustration, low self-confidence and social isolation for autistic individuals in the long term (Chamberlain et al., 2007). To facilitate language comprehension and overall communication, the use of visual support for individuals

with ASD has been proposed by scholars, interventionists and researchers (Cohen & Demchak, 2018; Knight et al., 2015; National Autistic Society, 2017). This is because visual thinking and learning has been characterised as a strong feature of people with ASD, and several research studies (Johnston et al., 2003; Hart Barnett et al., 2017; Diamond, 2018) have demonstrated that visual learning is indeed a successful approach for those facing difficulties in understanding abstract language and conceptions. Indeed, Grandin (2009), diagnosed with autism as a child, and now a leading advocate for autistic communities wrote:

"My mind works similar to an Internet search engine, set to locate photos. All my thoughts are in photo-realistic pictures, which flash up on the 'computer monitor' in my imagination. Words just narrate the picture" (p.1437)

Although research to date has not yet fully comprehended the processing of the autistic mind, Grandin's writings have emphasised the importance of visual learning in people with autism and revealed useful information for education systems to consider when teaching students with ASD, in addition to those who possess gifted potential.

The second key criterion for diagnosis of autism according to the DSM-5 (2013) is the manifestation of restricted, repetitive patterns of behaviour, interests or activities. This typically includes repetitive body movements such as hand or finger flicking, body rocking, intense body tensing and teeth grinding (DSM-5, 2013). Repetitive use of objects may include obsessive-compulsive behaviours such as lining up toys in rows, turning lights on and off and overall non-functional play with objects (Bishop, 2013; Abbott et al., 2018; Akkermans et al., 2019; Augustine et al., 2021). Furthermore, individuals with autism typically exhibit resistance to change, adherence to routine, and rigidity in comprehending abstract concepts such as irony, metaphors or humour (Carpenter, 2013). Finaly, ASD is also characterised by "highly restricted, fixated interests that are abnormal in intensity or focus" (DSM-5, 2013).

Interestingly, whereas children in early school years normally exhibit interest in a variety of toys, social games and activities, children with ASD tend to exhibit obsessive interest in odd topics and activities that typically transforms in to a fixation. This 'dysfunction' of fixation has been described as the underlying explanation for 'savant syndrome', a condition in which a person with disability manifests excess superior abilities typically related to memory, arts, music or mathematics (Treffert, 2009; Treffert , 1999; Straus, 2014). Also, some researchers (Baron-Cohen et al., 2009; Happé & Vital, 2009) have explained that ASD students with a fixation for specific topics or interests may develop these into a passion that subsequently develops into a talent, a phenomenon which has been observed in many autistic savants such as Temple Grandin, Stephen Wiltshire, and Christoffer Pillault.

While the aforementioned symptoms form the basis of criteria used for an autism diagnosis (DSM-5), several co-occurring characteristics have been found in individuals diagnosed with ASD. Such comorbidities range from behavioural manifestations like temper tantrums and self-injurious behaviours, to more psychopharmacological conditions such as Attention Deficit Hyperactivity Disorder (ADHD), eating or sleeping problems, and seizures (Matson & Rivet, 2008; Craig et al., 2015; Kuijper et al., 2017; Antshel & Russo, 2019; Salunkhe et al.,2021). Indeed, one of the most frequent co-occuring conditions with autism is Intellectual Disability, which has been estimated to co-occur in 38% of children with ASD (Centers for Disease Control, 2008). Contrary to this finding, studies by Crespi (2016) and Chiang et al., (2013), have found co-occurring characteristics of high IQ in individuals with ASD, which seems paradoxical given that ASD is typically associated with below-average IQ. According to Crespi (2016), this paradox can be explained by the proposition that autism involves enhanced, nevertheless imbalanced, components of intelligence. This is because there is a set of commonalities between autism and high IQ, such as large brain size, increased brain growth, differences in sensory or visual-spatial capabilities, detail-oriented focus, and interests in fields such as physical sciences and engineering (ibid). As it stands, this finding redirects the light from autism as a condition of disability to a condition of ability, describing autism as a "disorder of high intelligence" (Kenny et al., 2016; Crespi, 2016). A proclamation such as this deviates from the prevailing view of autism as an inability and could lead the way to a new perspective of autism, in which healthcare

and school professionals are educated to accurately identify and meaningfully develop this extraordinary potential of learners with ASD. In order to better comprehend the perplexing symptoms and co-occurring conditions of ASD, several theories have been proposed to explain autism. These theories will be discussed in further details in the following section.

2.1.2 Theories of Autism

Although there is no one universal theory that has been able to effectively explain the enigma of autism, many theories have been proposed aiming to do so, ranging from biomedical, neurological, to psychological theories. For this study, the cognitive-psychological theories have been selected to explain autism through an information processing perspective that occurs naturally in learning (Arbib, 2007; Rajendran & Mitchell, 2007; Romero-Munguía, 2008). The rationale for selecting these is the insight that they can provide when examining the cognitive process of people with ASD. By doing so, the process of learning and development can be better understood, which in turn could assist in the formation or modification of educational frameworks for such unique students. Cognitive-psychological theories of autism explain the cognitive process, and also offer an in-depth perspective of how giftedness emerges in individuals on the spectrum and how it can be fostered. As this current study examines students' perspectives on the educational provisions offered in school (in which information processing plays a vital role), other theories of autism (which focus on medical, genetic, brain, and hormonal factors) were excluded. Such theories focus on determining and 'treating' the root cause of autism (Bailey et al., 1995; Ecker et al., 2017) rather than understanding the psychological processes which take place regarding learning, social and emotional aspects of the student. Thus, the biomedical theories of autism were deemed inappropriate to this study.

The cognitive-psychological theories adopted as a theoretical underpinning for this study are:

- Central Coherence Theory (Frith, 1989),
- Theory of Mind (Leslie, 1987),
- Empathising-Systemising theory (Baron-Cohen, 2009),
- Executive dysfunction theory (Damasio and Maurer, 1978),
- Mirror Neuron Dysfunction theory (Rizzolatti & Craighero, 2004).

Fundamentally, the three predominant characteristics of individuals on the autism spectrum are deviances in social interactions, communication, and behavioural flexibility. Referred to as the 'core triad' (Pratt et al., 2017), these traits are described by the above-mentioned theories. Each of these theories on their own hold merit, but when combined they successfully explain several important aspects of this complex condition. The following section explores these theories in detail.

The central coherence theory

The central coherence theory (Frith, 1989) is based on an understanding of the way in which information is processed within the human mind. When recalling information or recognizing events, people typically recall the overall situation or general impression of the situation. However, individuals on the autism spectrum, tend to focus on very specific details, which can often lead to a lack of understanding of the actual meaning or the situation as a whole (Roth, 2010). This may explain why individuals on the autism spectrum often fail to understand the meaning of social situations and are unable to see the 'bigger picture' (Frith, 1989). In such cases, cognitive skills are impacted, often negatively affecting holistic perspectives, and positively encouraging attention to detail, which has been observed in a vast number of individuals with ASD (Klin, 2000; Grandin, 2009). Due to this, some researchers (Baron-Cohen et al., 2009) have implied that this divergence could help explain savant abilities and extraordinary giftedness in individuals with autism, and that this has been seen as a result of their peculiar ability to notice details and view things from different perspectives. This inability, or arguably ability, impacts how students with ASD process information in the mainstream school setting. Again, these students may demonstrate difficulty in processing abstract concepts that require comprehension of the 'bigger picture', while on the other hand they may exhibit superior ability in specific modules such as math and physics that require attention to detail (Baron-Cohen, et al., 2007; Al-Hroub & Whitebread 2019).

Theory of mind

One of the main influencers in this field, Leslie (1987), proposed that there was an evident correlation between the lack of development of pretend play skills in children with autism and the difficulties they faced in understanding other people's minds. He defined this as a 'Theory of Mind Mechanism' (ToMM), which functions by enabling a person to run through probable events and scenarios by imagining possible behaviors from another person. In essence, Leslie explains that children with autism are perfectly able to form tangible, primary mental models of items immediate to their perceptions (such as a table), however, they have an evident absence of ToMM as they are unable to form a 'decoupled' representation of concepts that are not tangible (Leslie, 1987). This in turn prevents both an ability to pretend play, and an ability to understand other's beliefs, thoughts and feelings, thus subsequently preventing them from predicting others' behaviors (Williams, 2010), a mechanism necessary to develop and maintain social relationships. The theory of mind assists in explaining challenges that individuals with ASD face in relating to others and exhibiting emotional intelligence, all of which are required to form friendships at a young age. As a result, it has been explained by Williams (2010) that people with ASD are looked upon as lacking empathy for others and frequently labeled as anti-social by teachers and peers (Harms et al., 2010). For this reason, teachers as well as peers, purposefully or not, create a social distance, leading to the segregation of students with ASD that in turn results in a lack of emotional as well as academic support required for such students (Berard et al., 2017).

Empathising-Systemising theory

The empathising-systemising theory of autism developed by Baron-Cohen (2002) suggests that people are categorised into two dimensions: empathising (E) and systemising (S). The theory is explained by hormonal and neurological underpinnings for empathy and systemising as brain mechanisms. In their study, Baron-Cohen et al. (2005) found that Fetal Testosterone (FT) levels in people with ASD are positively correlated with scores on the Systemising Quotient and are negatively correlated with scores on the Empathy Quotient. These insightful findings indicate that people diagnosed with ASD demonstrate high abilities in systematic thinking while exhibiting little empathy towards others. Implications of this can be observed in educational settings, in which students with ASD demonstrate exceptional abilities in tasks that are based on

patterns and systematic thinking (such as math, physics and memory-related assignments), while demonstrating poor social skills, in particular when empathizing with others. Furthermore, the theory provides an explanation as to why some individuals with ASD appear 'emotionless' and face difficulty in maintaining social relationships, while exceling in other cognitive, systematic areas. Some scholars have even argued that such systematic cognitive processes in autistic individuals may be attributed to some of their gifted traits which is often reflected in their higher IQ scores (Baron-Cohen et al., 2007; Duncan & Bishop, 2015; McQuaid et al., 2021). Moreover, in support of the empathising-systemising theory, there is a large body of research (Baron-Cohen & Wheelwright, 2004; Baron-Cohen et al., 2005; Baron-Cohen , 2009; Di Ceglie et al., 2014; Greenberg et al., 2018) supporting the idea that people with autism are good at systematic thinking and poor at empathy, demonstrating male-female and autism-male-female differences in performance in tasks.

Executive dysfunction theory

The Executive dysfunction theory originated with a 1978 paper by Damasio and Maurer who described similarities in symptom presentations in autism to those seen in patients with frontal lobe brain injuries, who were impaired in tasks tapping executive skills. These functions are crucial in management of the cognitive system, and include task flexibility, planning, problem solving, working memory, initiating, sustaining, shifting, inhibition and execution of actions (Lezak et al., 2004). According to this theory, autism can be explained as an impairment of such cognitive functions; this can be observed in many of the stereotypical behaviors and restricted interests of those on the autism spectrum. Jones et al. (2018) explained that these autistic features of rigidity and planning problems have been observed in patients diagnosed with executive dysfunction. For this reason, the theory indicates that although students with ASD may gain a high IQ score on intelligence tests, cognitive deviations (such as shifting attention, planning and problem solving) may still be impacting vital operations such as focusing, learning and task completion, all of which are crucial for the acquisition of effective education (Klinger et al, 2007; El-Seoud et al., 2019). This paradox is the root cause of the complex co-occurrence of high intelligence and cognitive dysfunction or disability, a phenomenon now known as twice-exceptionality (Ronksley -Pavia, 2015). Due to their extraordinary nature, twice-exceptional

students will typically require alternate types of teaching strategies that considers their cognitive differences (which impact certain aspects of their education) as well as their high intelligence or giftedness, which is often overlooked and masked by their disability (Ronksley -Pavia, 2015). This will be discussed further later in this chapter.

Mirror neuron theory

The mirror neuron theory developed by Rizzolatti & Craighero (2004) attributes the symptoms of people with autism to dysfunctions in their mirror neuron system; an important neural substrate for imitation. Due to its essential role in imitation, it has been argued that this system lays the founding mechanism for understanding the actions and intentions of others (theory of mind), empathy and the acquisition of new skills through imitation (Arbib, 2005). As autism is characterised by difficulties in imitation, empathy and an understanding of others' emotions, this theory eventually led to the formation of the hypothesis that people on the autism spectrum have impairments in the mirror neuron system (Hamilton, 2013). Other authors, such as Théoret and Pascual-Leone (2002) conclude that these hypothesized 'impairments' in the neuron system are related to the exhibited language differences in people with autism.

Some researchers (Neta & Varanda, 2016; Hamilton, 2013) have explained that impairment in the mirror neuron system, whether reflected in the social aspects or language, directly impacts the formation of social relations in schools and in a child's natural environment. Furthermore, a difficulty in the ability to imitate will result in inefficient learning, a decreased acquisition of skills, and an insufficient comprehension of social rules and cultural values. Hopper (2010) described imitation as a type of social learning that forms the "development of traditions, and ultimately our culture. It allows for the transfer of information (behaviours, customs, etc.) between individuals and down generations without the need for genetic inheritance" (p. 294). Thus, having an impaired neuron mirror system (as argued in autism), may lead to an inaccurate understanding of cultural values, traditions and customs, which may subsequently challenge the autistic learner to understand others' behaviors, develop friendships, and follow social rules set out in the school setting. This is significant because the mirror neuron theory of autism can

explain the social challenges manifested in autistic learners and may be considered one of the significant theories addressing one of the key mechanisms of autism in the educational context (Dapretto et al., 2006; Hamilton, 2008; Enticott et al., 2012).

Summary of autism theories

It should be noted that even though these cognitive theories of autism have indeed offered rational clarifications about the underlying mechanisms of autism, they have been criticised for their incomprehensive approach in explaining autism as a whole (Rajendran & Mitchell, 2007). Each theory alone addresses certain aspects of this complex condition, however, no one individual theory has been successful in explaining the behavioural manifestations of autism as a whole.

However, combined, they cover most aspects of autism and are able to present an accurate understanding of the behavioural manifestations exhibited by individuals on the spectrum. Furthermore, the theories combined assist in explaining the remarkable occurrence of twice-exceptionality. Although the cognitive theories of autism mainly emphasize deviatons and challenges of individuals with ASD, these very same deviations have paradoxically led to the formation of such gifted potential. Figure 2.1 below summarizes the cognitive theories of autism and and how they may explain the phenomonen of twice-exceptionality in learners with ASD.

Central coherence theory	→	Difficulty seeing the 'whole', focus on details
Theory of Mind	→	Inability to understand others emotions and actions
Executive dysfunction	→	Impariment in cognitive areas like flexibility, memory, inhibition
Empathising-systemising theory	→	Using more of systematic thinking and less on empathy
Mirror neuron theory	→	Inability to imitate, and therefore impact social learning and relations

Behaviors manifested in school

Gifted behavior
- Excel in academic (systematic) subjects like math, physics
- Above average IQ
- Detail-oriented
- Strong memory
- Strong visual ability

Dysfunctional behavior
- Poor understanding of social rules
- Difficulty understanding others
- Difficulty making relationships
- Poor imitation skills (social learning)
- Adherence to routine, and consistency

Twice-exceptional learner (gifted with a disability)

Figure 2. 1 Summary of theories of autism assisting in explaining twice-exceptionality

2.2 Giftedness

This section presents various definitions of giftedness that have been proposed to better understand the meaning of giftedness, high abilities, and talents; it also presents the history of giftedness, the evolvement of this terminology, and the different models and theories that have been proposed throughout recent decades to understand how to identify and measure giftedness. This starts with a description of the psychometric approach that was developed as an initial

method to identify and measure giftedness; it continues to the multidimensional approach, which is the approach adopted for the purpose of this study. This approach includes Renzulli's (1977) Three-Ring Conception of Giftedness, Gardner's (1983) theory of Multiple Intelligence, and Gagné's (1992) Differentiated Model of Giftedness and Talent, exploring giftedness through a flexible lens.

2.2.1 Definition of giftedness

The term 'giftedness' is a fluid concept that denotes different meanings in various cultures throughout numerous contexts (Nielsen, 2010; Sternberg et al., 2011). Evidently to date, there has been no one consensus upon the established definition of the term 'giftedness'. Due to its complex nature, scholars (Davis & Rimm, 2004; Terman & Oden, 1959; Coleman, 2001; Colangelo, & Davis, 2003; Gardner, 1983; Gagne, 1992; Sternberg, 2000) have across time differed in the definition of this term and attempted to propose various descriptions and identifications.

Starting early back in 1904, Alfred Binet and Theodore Simon developed the first modern intelligence test in IQ history. This test came as a result of the request of the French Ministry of Education who wanted a test that would allow for distinguishing between 'mentally retarded children' (as it was referred to back in these years), from normally intelligent but lazy children (Wolf, 1969; Becker, 2003). The outcome was the Simon-Binet IQ test that consisted of a variety of components including logical reasoning, naming objects, and finding rhyming words (Bain & Allin, 2005). In 1920, Terman, a Psychologist at Stanford University, embraced the IQ concept wholeheartedly, and argued that giftedness could also be measured through IQ testing, thus, starting the giftedness definition with its long association of superior IQ (Terman, 1920). Throughout the decades, however, giftedness has been re-defined by scholars and developed into a more holistic approach incorporating various types and dimensions of intelligence emphasising aptitudes such as creativity, leadership, problem solving, arts, social skills and academic performance (Gardner, 1983; Renzulli, 1978; Gagne, 1992; Sternberg, 2000).

Various theories (such as Sternberg's Theory of Successful Intelligence, Ziegler's Actiotope Model of Giftedness, and Feldhusen's conception of talent and talent development) have been proposed to define and explain giftedness, which aim to accurately describe what it means to be 'gifted'. Indeed, for many years it has been debated whether the terms gifted and talented differ in definition and classification (Gagné, 1990; Bates and Munday, 2005). Bain et al. (2003) argue that a gifted individual is one who demonstrates an exceptional ability across various subject areas involving sports, social situations, and academia, whereas a talented individual excels merely in one. Gross (2004) expands this notion and explains that giftedness is signified as aptitude which is evidently above average in areas such as intellectual, sensory-motor ability, creativity and socio-affective domains, whereas talent is referred to as above average performance in human accomplishments. With factors such as a supportive environment, favorable conditions, and development, Porter (2005) affirms that gifted individuals may be encouraged and nurtured to encompass a talent in a specific domain. In contrast to other scholars, she also argued that talent can be exhibited in various domains rather than simply one (Porter, 2005). In his differentiated model of giftedness and talent, Gagne (1991) argues that giftedness is a superior natural ability that manifests itself spontaneously while talent is an ability or skill that has been developed exceptionally well through extensive training. Thus, he implies that a talent may imply a gift, while a gift does not necessarily imply a talent (ibid).

In contrast to this notion, Davis & Rimm (2004), disagree with the concept of differentiating between giftedness and talent. They argue that 'gifted' and 'talented' ought to be merged into one identical term, as the interpretation of giftedness to a single definition is too challenging. They explain several reasons as to the difficulty in securing one single definition of giftedness. The first reason is that decision makers will be guided in the identification process by this one single definition, thus leading to the second reason which will lead to the exclusion of certain gifted groups, such as those with a disability or living in poverty, as a result of constraints in the definition or labelling. Thirdly, a definition of gifted student may limit the opportunities and provisions offered for such individuals, therefore overlooking abilities, potential and talent that may be functionally developed in school or work settings. Finally, Davis & Rimm (2004) claim that a 'gifted label' placed on individuals may in certain settings cause more harm than good.

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Little (2001) agrees with this and argues that gifted students (in school settings) are disposed to bullying and malicious labels, as a result of their above average performance in class, thus standing out from the crowd. In line with this argument, one study conducted by Peterson and Ray (2006) found that by eighth grade, more than 67% of gifted students have been victims of bullying, in which 19% of this bullying was specifically related to grades and intelligence. A further review conducted by Steenbergen (2017) examining gifted students and bullying from 1970 to 2014 revealed that gifted students are often victims to bullying at similar rates as other targeted groups of victims. Additionally, Gross (2002) and Meier et al. (2014) argues that gifted students' exceptional abilities make them stand out from peers and so they become an easy target for perpetrators. It is not uncommon across various cultures to observe this small fragment of students being stereotyped and labeled as 'nerds' (Little, 2001), being exposed to name-calling and teasing about appearance (González-Cabrera et al., 2022; Ladd et al., 2017; Gaffney et al., 2019), being called a 'teachers-pet' (Babad, 1995), and being exposed to physical abuse (Olweus, 1995). Although bullying has been reported in a large number of studies of gifted students, opposing views to this occurrence are reported by other researchers. One such study by Oh et al. (2016) argued that high-achievers actually reflect positive perceptions of high-achieving classmates and popularity among peers.

Similarly, other studies (Udvari & Rubin, 1996; Austin & Draper, 1981; Schneider, 1987; Preckel et al., 2017; Worrell et al., 2019; WCGTC, 2020) found that gifted students tend to be liked by their peers; specifically, one study conducted by Baudson & Preckel (2013) found that this group of students were more popular than their peers. One interesting notion was observed in the study of Rimm (2002) who found that gifted pupils were generally well-liked and popular at an early age, while this popularity advantage would disappear by middle school. This was explained by the changing priorities of students at this age, such as the importance of being athletic versus being 'nerdy' (Wellisch & Brown, 2013). O'Connor (2010) also examined the socially constructed nature of the concept of the gifted student and found that students who are exceptionally able in sport or music are less negatively framed than those gifted academically.

Although studies demonstrate opposing perceptions on the topic of social challenges and popularity amongst gifted students, research has generally shown that this group of exceptional learners often face difficulties in fitting into social settings and developing friendships (Gallagher, 2015; Neihart, 2016; Hertzog & Kaplan, 2016). Papadopoulos (2021) attributes this difficulty to the mental age and capacity of gifted students that often exceed their chronological age. As a result, such students prefer the companionship of older peers or other gifted age-peers which is often not available in most mainstream schools (Coleman et al., 2015; Maksić & Slavica, 2018).

To summarize 'giftedness', the literature reveals that no one definition of giftedness has been established. Several definitions have been proposed, argued, rejected and re-defined, based on global changes, cultural differences and modifications (WCGTC, 2020), while some have even argued that giftedness is a socially constructed concept rather than a fact of nature or something 'discovered by educators' (Borlan, 1997; O'Connor, 2010). As a result, O'Connor (2010) argues that this socially constructed concept has come with a negative stereotype, exposing such students to marginilisation, particularly in the school setting. It can be agreed that whether the term 'giftedness' or 'talent' is used, exploring it in social leadership, arts, sports or academic domains, the term must refer to some sort of exceptionality (Gallagher, 2015; Neihart, 2016).

2.2.2 A Continued Debate Throughout History: The Psychometric Approach

Historically, giftedness was associated with an extraordinary cognitive ability in relation to age and focused mainly on intellectual features in individuals categorised in this group. This psychometric approach was the first school of thought in examining giftedness and was first described by Galton (1869) and later Terman (1925), who promoted the application of IQ measures to define and identify gifted individuals. In his longitudinal study, Terman (1959) concluded that individuals who scored an IQ score of at least 140 on the Stanford-Binet Intelligence Test are the ones labeled as gifted. In addition, he argued that this population group would perform well in educational subject areas and on overall aptitude assessments. The problems associated with this notion are examined further in this chapter below.

The use of psychometric testing to define giftedness has been widely debated over the years, and scholars in favor of this theoretical orientation (Robinson, 2005; Lovett & Sparks, 2010) have argued that the use of such instruments is useful for predictive assessments. Studies conducted by Bridgeman et al. (2001) and Robinson (2005) suggest that there is a predictive correlation between high academic performance and above average IQ, and that IQ commonly tends to stay unchanged over time. Although it has been noted that this school of thought may provide efficiency, flexibility (in choice/use of instruments), and statistical validity to identify the gifted population (Lovett & Sparks, 2010), the psychometric approach has been highly criticized primarily because of its one-dimensional view of giftedness (Gordon & Bridglall, 2005; VanTassel-Baska, 2008; Al-Momani & Al-Oweidi, 2020).

Despite his pioneering work in the psychometric approach, Terman (1959) himself in later publications admitted that IQ tests may offer a correlation for student performance but does not in actuality predict student achievement. Moreover, he noted that psychometric testing disregards confounding factors that may impact gifted behaviour, and therefore produce misguided results. Some of these factors, were discussed by (Hoeflinger, 1998) who argued that the accurate identification of gifted students may be perplexing as such students may display a lack of enthusiasm, effort or interest if their needs are not met during the administration of psychometric testing, consequently leading to inaccurate IQ scores and misidentification of gifted individuals. Hoeflinger (1998) and Preckel et al. (2017) go onto claim that proficiency tests often overlook true competencies of gifted students and emphasise solely on cognitive abilities, a claim that has been supported by a vast number of theorists over time (see for example Coleman, 2003; Davis and Rimm, 2004; Mulhern, 2003; Wallace et al., 2018).

Such criticism on the use of psychometrics revolves mainly around its one-dimensional view of giftedness (Gordon & Bridglall, 2005; Renzulli, 1978, 2005; Sternberg, 2005). Scholars have argued that IQ tests are restricted in assessing genuine skills of individuals and focus merely on certain intellectual areas while overlooking other magnitudes of talent in the test-taker. Gordon & Bridglall (2005), elaborated that psychometric testing focusing exclusively on cognitive domains leads to disregarding other minority groups that are typically not included in gifted identification groups, these include underachievers, poor test-takers and other minority population.

Various authors (see for example Colangelo & Davis, 2003; Grimm, 1998; Dole, 2000; Weinfeld, 2018) have discussed this exclusion bias and warned that identification of gifted individuals through IQ scores, will omit gifted students with learning disabilities (i.e. twice-exceptional students) from their right to grow and receive the appropriate type of support. Coleman (2003) in fact claimed that it is essential for identification procedures of gifted individuals to include gifted students with a learning disability, along with minority groups and females (Coleman, 2003). Gifted programmes have demonstrated that the abilities of such individuals are valuable for creating a meaningful change in society (Goleman, 2006; Renzulli & D'Souza, 2012) and it is therefore essential to include all categories of gifted learners to such provisions, in addition to those with ASD who have demonstrated divergent thinking and different perspectives in various areas.

It has indeed been demonstrated that certain groups of individuals classified with a learning disability do exhibit exceptional abilities in various domains such as arts, sport, science, math and memory ability (Neu, 2003). Paradoxically, this group of children (which includes those with ASD, ADHD, and a Learning Disability) often lack 'basic inborn' abilities, as described by Wallace (2008); such as common problem solving, imitation skills, and understanding of social contexts, all of which are essential for attaining an average to above average score on IQ tests (Nettelbeck & Wilson, 2005). For example, a gifted individual on the autism spectrum may go unidentified throughout their lifespan due to the social challenges, and continue living with the label of ASD (often negatively associated with disability), while never actually demonstrating all their gifted potential.

According to Preckel et al. (2017), psychometric testing is too restricted in its nature to define giftedness on its own, yet IQ testing may open the door for novel findings on gifted students diagnosed with ASD and other learning disabilities. One such finding is the area in which gifted students with ASD fail to complete a task (Assouline et al., 2012). This task completion failure may develop our view of the areas in which such students lack competency, whether it be social context, verbal or non-verbal tasks, academic tasks or more open ended assignments, and aid in widening the general understanding of the twice-exceptional mind. By examining such specific task failures, weaknesses of the gifted student with ASD may be assessed in an IQ specific (cognition) context and broaden our understanding of the impact on such students - an area that

to date lacks sufficient data and research (Burger-Veltmeijer & Minnaert, 2011). IQ tests may not only assist in demonstrating the cognitive limitations of gifted students with ASD, but it also opens doors for caretakers and teachers in classroom settings to comprehend individual differences in strengths and weaknesses of gifted students, opening the pathway to implementation of novel teaching strategies and provisions offered for this target population. This notion was also discussed by Neihart (2000) and Pameijer (2006) who argued that there is an evident need for novel understanding of the necessities of students diagnosed with a disability and simultaneously giftedness, in an effort to provide the most convenient support.

In sum, the criticism and consideration of psychometric use for the identification of gifted individuals, Coleman (2003) proposed the application of further various methods to characterise gifted individuals. Other than IQ testing, he suggested the following measures:

- Information retrieved from various sources to offer a representation of the students' real abilities. These may include students' academic performance, accomplishments, mental capabilities, originality, behaviours, and learning styles.
- Evidence bases of such information retrieved. This may be derived from student exam results, teachers' feedback on student, and overall grades in school.
- Numerous and diverse identification processes that take place on regular basis to ensure the inclusion and equal opportunities of all students.

(Coleman, 2003).

Similar to these suggestions, Sutherland (2008) proposed the use of different assessment tools to recognise gifted potential in children. This includes peer evaluations, anecdotal records, observations, developmental assessments, and teacher assessment scales. Associating the term giftedness with these proposed measures may shift the association of IQ measures to a more multidimensional view of giftedness (Coleman, 2003); a notion which leads to the next section of this chapter.

2.2.3 The Multidimensional Definition of Giftedness

In view of the criticism on measuring intelligence through the use of psychometric scores, it can be argued that this approach has, and will continue to raise concerns on the accuracy of defining gifted individuals. For this reason, theorists have shifted away from this historical base of psychometric testing for the identification of gifted individuals and moved the focus of giftedness from a one-dimensional view to a more holistic view that incorporates multiple components (Gardner, 1993; Sternberg, 2005; Renzulli, 2005; Gagne, 1992). Despite that IQ testing is still the foundation for many studies examining giftedness (Gilliam et al., 1996; Margulies & Floyd, 2004; Fernández et al., 2017), the multidimensional framework for giftedness has received extensive interest; and for the purpose of this thesis, three main theories form the foundation for this study. These are:

- Renzulli (1977) Three-Ring Conception of Giftedness,
- Gardner's (1983) theory of Multiple Intelligence, and
- Gagné83 (1992) Differentiated Model of Giftedness and Talent

The rationale for selecting these three theories is their application to learners with ASD and twice-exceptional learners in general. As the focus of this study is on gifted learners with ASD, they were deemed most appropriate for several reasons:

1) Firstly, Renzullio's (1977) Three-Ring Conception of Giftedness looks at above average ability, creativity and task commitment. Above average ability has been observed greatly in learners with ASD particularly in certain academic areas (Baron-Cohen et al., 2007). Creativity has been manifested in arts, music and talents of those with ASD (such as savants). Lastly, task commitment would be an interesting area to look at how to improve the self-image of those with ASD and develop the skills to put motives in to acts.

2) On the other hand, Gardner's (1983) theory of multiple intelligence has been selected not as a means of defining giftedness but rather as a means to explore various domains of giftedness. Learners with ASD typically exhibit talent in various areas defined by Gardner such as visual ability, artistic (music), and math (Gardner, 1983). Thus, the

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theory was thought to be adopted in this study to examine how these descriptions could help teachers in recognizing gifted potential in other domains that exclude academic achievement.

3) Lastly, Gagne's (1992) Differentiated Model of Giftedness and Talent differentiate between gifted and talent, two distinctive elements that build on each other. He argues that some students may have a talent that if fostered appropriately will develop into giftedness. Many such cases have been witnessed in learners with ASD in which talent exists but must be encouraged by caregivers or teachers in order to develop into giftedness (Assouline et al., 2012). Additionally, Gagne (1992) presents four areas of giftedness in which disability can also be manifested (intelligence, creativity, socio-affective and sensorimotor), which is one of the reasons that the model has received extensive recognition and acceptance particularly in the inclusive education context (Ronksley-Pavia, 2015).

It is important to note that these theories are not intended to represent all other giftedness theories; however, they have been selected for this study in relation to the scope of the topic under investigation and to avoid drifting away from the comprehensive purpose of this study. While other prominent theories of giftedness such as Ziegler's Actiotope Model of Giftedness and Sternberg's Theory of Successful Intelligence have been proposed to explain giftedness, they are limited in explaining giftedness with the existence of a co-occurring disability. However, the theories selected for this study, are applicable to twice-exceptional learners in the mainstream education setting.

The Three-Ring Conception of Giftedness

As a forerunner in the multidimensional definition of giftedness, Renzulli (1977) proposed his Three-Ring Model that divides giftedness into three categories of human traits, which are above average ability, task commitment and creativity. He explains that only when characteristics from all three rings converge, gifted behavior may be observed. However, he claimed that it is not a necessity for a student to be high on all traits in order to be identified as gifted (Davis and Rimm,

2004; Baum et al., 1998). Thus, the Three-Ring Model can be used to identify exceptional abilities not only in gifted learners but also in gifted learners who exhibit any type of disability. Unlike other models of giftedness, this theory allows for flexibility in terms of the extent to which students demonstrate potential in each 'ring'. A student with ASD for instance may exhibit above average ability and high creativity, while exhibiting low task commitment (Duncan & Bishop, 2015). According to Renzulli, this student would still be identified as gifted, thus the theory allows for those diagnosed with a disability to still be identified as gifted. This concept is illustrated in Figure 2.2.
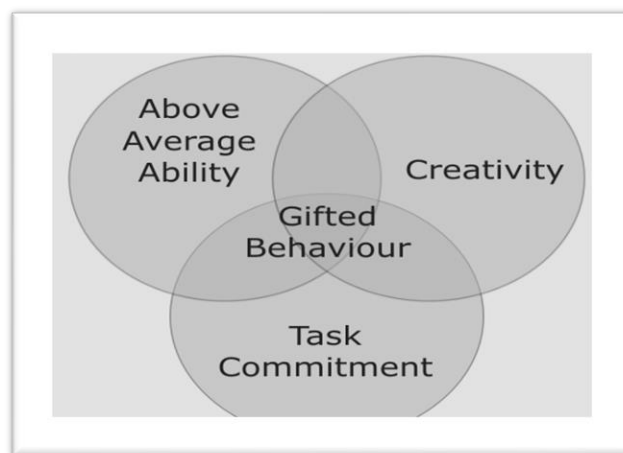
Figure 2. 2 The Three-Ring Conception of Giftedness (Renzulli, 1977).

Above average ability

Whereas the 'above average ability' (Renzulli, 1977) distinguishes between general abilities and specific abilities, with general ability, Renzulli referred to traits that may be observed in general or broad domains such as information processing, abstract thinking, integration and adaptation of novel experiences. Examples of this include academic domains such as numerical and verbal reasoning, word fluency and memory (Renzulli, 2005). Such abilities are typically assessed by traditional aptitude tests and are widely applied in conservative education settings.

However, specific ability, refers to the ability of acquiring novel information and skills, or the ability to perform a specialized type of activity within a restricted range. Examples of this includes arts, music, photography, astrophotography, science and sports (Sternberg, 2005). Renzulli explains that these abilities are represented in the ways in which humans express themselves in reality, as opposed to a simulated test setting. In contrast to general abilities that can be evaluated through direct aptitude testing, specific abilities such as sports, social skills, arts and leadership must be assessed through observation and other performance-based evaluations by competent assessors (Renzulli, 2005). It is in settings such as this that individuals with disability, including ASD may be more identifiable. Notably, due to their socio-emotional challenges (Soares et al., 2019), gifted learners with ASD may demonstrate an inability to exhibit their gifts and talents in simulated settings and so it may be more beneficial for such learners to be assessed for giftedness in a natural environment rather than a 'direct testing' setting. As a result of this difficulty in 'succeeding' in direct testing, gifted learners with ASD may not be recognised as gifted (according to the scoring/testing scheme), leaving such students mis-identified and ultimately misplaced in the education system. Therefore, it could be proposed that certain testing procedures aiming to assess gifted traits in students with ASD should take place in the natural environment of the student, where minimal social pressure is placed.

Creativity

Creativity has been widely described in association with gifted behaviour in many models of giftedness (Vernon, 1967; Miller et al., 1996; Walberg, 1971). This term has been described differently by various scholars as listed previously, however, most definitions share a lot in common with Renzulli's description, who defines creativity as:

- Flexibility and fluency in cognitive processing,
- Openness to new experiences,
- Originality and ingenuity of thought,
- Willingness to take risks, and

Sensitivity to simulations (Renzulli, 1977).

One issue with the description 'creativity' is that researchers have not been able to establish a well-defined relationship between creativity assessments and factual benchmarks of creative accomplishment (Wallach, 1976; Lakin & Wai, 2020). This raises a vital question, which has been raised in several other domains of giftedness: 'how is creativity really measured?' While future longitudinal research promises to provide an answer to this question, very limited tests have been validated to measure creativity (Woolcott, 2013).

Considering the limitations of creativity tests, some researchers have proposed alternative means to assess this aptitude. For example, Zirkel (2016) proposed that a trait-based approach could make space and forecast creative potential. He argued that individual traits such as problem solving (through solving a problem with no prior experience to that specific issue) could predict creativity and define such individuals. Some authors (Silvia et al., 2012; Barbot et al., 2011; Reiter-Palmon & Schoenbeck, 2020) suggested a different approach to assess creativity through individual self-report about creative achievements; they argued that these types of reports would accurately suffice to offer researchers a valid source of data.

Though many have argued that creativity is a fundamental feature in the definition of giftedness (Woolcott, 2013; Mansfield, 2016; Foley-Nicpon & Kim, 2018; Renzulli, 2005; Miller et al., 1996), the criticisms regarding measurement validity raise a concerning issue of bias, as well as the questionability on what really defines creativity, and how such students can be identified. Therefore, it is essential to keep in mind that although highly creative individuals typically demonstrate divergent "out of the box" thoughts (Haier, 2009), caution must be taken when interpreting and implementing assessments designed to assess this ability.

Task commitment

The last feature of Renzulli's Three-Ring Model is task commitment, which he describes as motivation converted into acts (Renzulli, 1984). Elaborating, he explained that task commitment is the ability to regulate one's own learning through endurance, hard work, empathy, insightfulness, and confidence; hence converting one's power of will to tangible achievements

(Renzulli, 1984). These competencies start developing in grade two students where children start comprehending interpersonal relationships and orientation towards fixed rules, all of which are essential for high achievement and 'gifted behavior'. Once children at this age start understanding social rules, this cognitive concept may be applied to more abstract domains such as academics (Duncan & Bishop, 2015). According to Renzulli, when such rules are applied in academic subjects, a set of cognitive guidelines and patterns are followed, increasing educational achievements with the increased awareness of such rules.

Despite the fact Renzulli's Three-Ring Model is applied in many school systems as an identification model of gifted students (Davis & Rimm, 2004; Page, 2006), the last ring in the model (task commitment) overlooks limitations where minority groups like twice-exceptional students come to light. Moreover, although such students may excel in performance of academic tasks and creativity (Ronksley-Pavia, 2015), twice-exceptional students often struggle with social challenges, causing difficulty in interpersonal relationships, empathy, and self-confidence (Trail, 2011); all of which have been described by Renzulli (1984) as areas essential for task commitment, again, causing difficulty for twice-exceptional students to be included in this category. Furthermore, it has been argued by some authors (Pfeiffer, 2002; Clemons, 2005) that the Three Ring Model falls short in identifying students with above average ability and creativity but have not yet been able to demonstrate such attributes as a result of insufficient environmental exposure and support. Their level of task commitment is not yet fully developed as the student may not have been exposed to triggers or motivators to inspire their gifted characteristics (Duncan & Bishop, 2015).

Interestingly though, fascination with a special subject was also included as an area of significance in Renzulli's model of task commitment, an area in which students diagnosed with ASD are well-known for (Ronksley-Pavia, 2015). Notably, the reason why fascination with special interests/subjects and autism are highly associated to each other is not clearly understood (Caldwell-Harris & Jordan, 2014). However, Assouline et al. (2008) and Clark (2016) aim to clarify this by explaining that the 'rigid' thought process of individuals with ASD leads to an 'all-or-nothing' type of thinking, making subjects either extremely interesting or not interesting at all. They postulate that when applied to favourite interests, this may sometimes convert into a

passion or obsession, making the individual very knowledgeable about the subject (Clark, 2016; Assouline et al., 2008); therefore, it is in this area that twice-exceptional students with an ASD diagnosis in a school setting may stand out as gifted.

Renzulli (1986; 2009) notes that giftedness can be manifested through different degrees and combinations of the proposed traits, hence he described giftedness as a behaviour rather than an attribute. For this reason, it has been suggested by Yssel et al. (2010) that the Three Ring Model is used in conjunction with other theories of giftedness to provide a more comprehensive synthesis of data on a student's actual ability. This leads to the next model of giftedness with great importance of this study, which is Gardner's theory of multiple intelligence (1983).

Theory of multiple intelligence

In accordance with other theories arguing against the concept of defining giftedness as one single aptitude, Gardner (1983) proposed the Multiple Intelligence (MI) theory that divides human intelligence into various modalities. He argued that intelligence is the biopsychological potential for processing information (Gardner, 1993; David, 2014). His theory was meant to 'empower learners' and ultimately emphasised the need for change in educational curriculums to move away from restricted curriculum and focus on children's true capabilities (David, 2014). Initially, Gardner proposed seven types of intelligences which represent the different ways in which data is processed in humans (Coroiu , 2018) and he subsequently added an eighth modality to his model, and ultimately a ninth. Table 1 defines each modality as described by Gardner (1983) with a further pillar added to explain how the theory can aid in comprehending the importance of each intelligence to identify gifted individuals with ASD.

Table 2. 1 Nine dimensions of Gardner's Multiple Intelligence theory (1983)

Type of intelligence	Description, retrieved from Gardner (1983)	Significance to study under investigation
Verbal-Linguistic	Individuals with high linguistic intelligence exhibit a competence with words and languages, and typically excel in areas as reading, writing, and learning new languages.	This aptitude is necessary and may be observed in individuals such as prominent writers, lawyers, and public speakers. This ability has also been observed in young students diagnosed with Asperger Syndrome who have been defined as 'little professors' in their approach of speaking due to their above average vocabulary (Trail, 2011).
Mathematical-logical	This modality includes the ability to analyze problems in logical means (i.e., critical thinking, reason deductively, and numbering).	Along with other great physicists and mathematicians, Einstein and Newton excel in this area and have both been speculated to be on the autism spectrum (Yuan, 2009). This opens doors for a further investigation on ASD and its relation to mathematical-logical intelligence.
Musical	People with a high musical intelligence typically exhibit a great sensitivity to rhythms, pitches, and musical patterns making them more competent in playing instruments and music composition.	This competency can be witnessed in prominent musical performers/composers who have often been identified as exceptional talents throughout history, such as Beethoven, Mozart and Bach (Barber, 2017). Further indications of musical intelligence can be observed in blind music composers, singers and performers, who use only their sensitivity to sound to produce such talent.
Visual-Spatial	This area includes strong visualizing skills, meaning	Young children high on this modality typically enjoy puzzles, drawing, and arts. They also

	ability to identify directions, maps, pictures etc. Spatial intelligence is also indicated as the ability to recognize and manipulate three-dimensional configurations.	excel in recognizing patterns - skills that are all needed for careers such as architects, designers and engineers. Individuals on the autism spectrum have also been identified as being high on this area as part of their way of interpreting the world "in pictures" (Grandin, 2006). Examples such as Stephen Wiltshire – an adolescent savant with ASD - was able to take a photographic memory of the city of New York through 20 minutes helicopter ride, to later draw it out with each minor detail (Kozbelt & Kantrowitz, 2019).
Bodily-Kinesthetic	The core element of this type of intelligence is the mental ability required to coordinate body movement with the evident objective of the physical act.	People skilled in this domain typically pursue passion or careers in fields like sports, acting, and dance. Furthermore, skilled builders and other hand work like carpenters will usually display a high bodily-kinesthetic intelligence (Gardner, 1993).
Interpersonal intelligence	People with high interpersonal intelligence are characterized by their sensitivity to understanding other's actions, motivations and desires, and accordingly act efficiently. Gardner has equaled this type of intelligence with	Having high interpersonal intelligence benefits in communication and empathizing with others. Thus, cooperating and working as part of a group is a skill that is easily observed in such individuals. Children and young adults high on this intelligence are often enchanting and able to easily build social relationships, leading them to 'get out of trouble' in school and home settings. Gardner (1995) believed that careers suiting those with high interpersonal

	Goleman's (1995) notion of emotional intelligence.	intelligence are social workers, political leaders, managers and sales people.
Intrapersonal intelligence	Having strong intrapersonal intelligence means having a well-established understanding of one's own emotions, cognitive abilities and actions.	This type of intelligence is highly important for both gifted learners and autistic learners as growing research has demonstrated the challenges faced by both groups of learners in this area (Rajia & Stojanovia, 2018)
Naturalist intelligence	Naturalist intelligence was not part of Gardner's initial multiple intelligence theory. He introduced this modality in 1995 and explained that people high in this domain have extensive understanding of nature and its taxonomies.	This capability was of great value in human evolutionary past as farmers and hunters and continues to play a vital function in roles like biologists, botanists or chefs.
Existential intelligence	People with high existential intelligence are philosophical thinkers. They think more deeply about daily occurrences and have the ability to search for answers to questions bigger than themselves. This type of intelligence is also referred to as spiritual or	Gifted learners often exhibit this type of intelligence while this may be a challenge for learners on the autism spectrum due to the challenges in comprehending abstract concepts (Duncan & Bishop, 2015)

moral intelligence
(Nettelbeck & Wilson,
2005).

Despite the worldwide recognition the model has received, some critics (Sternberg, 1991; Resing & Drenth, 2007) have argued that the theory lacks sufficient empirical evidence and fails to find high correlations between different aspects of intelligence (Waterhouse, 2006). The model does not provide an assessment instrument to measure giftedness and thus makes the judgement on defining gifted learners significantly subjective (Waterhouse, 2006). Essentially, this means that the identification of gifted learners would be based on educators' subjective judgment, which will subsequently lead to inconsistency and under or over identification of students, and ultimately lead to the erroneous provisions offered to the student. In response to this, Gardner initially responded by arguing that giftedness can be defined as the capability to solve problems of significance in at least one culture; however, he later claimed that his classification of gifted is based more on artistic judgment rather than empirical facts (Ronksley-Pavia, 2015). Despite this criticism, the theory of multiple intelligence allows for flexibility in the ways in which students may be identified as gifted. The different types of intelligences proposed by Gardner represent different ways in which students may exhibit great potential, without restricting the student to specific criteria for 'qualifying' as gifted. This is particularly important and applicable to twice-exceptional students as this group of learners may struggle to demonstrate exceptional ability due to their disability. Thus, the theory of multiple intelligence was adopted for this study with the aim of empowering students rather than limiting them to one means of learning (McKenzie, 2005). Furthermore, Rajia & Stojanovia (2018) argued that the multiple theory of intelligence is not meant to be used as an assessment model to identify gifted students, but rather to expand our view of giftedness and aid learners to develop their potential. This is especially important for learners with ASD who manifest uneven abilities and are often overlooked or misidentified as result of the narrow views on giftedness (Karnes et al., 2009). By using these biopsychological potentials in gifted learners, Gardner (1999) claims that cultural problem-solving, and products can be produced with added value to society in a variety of necessary areas. This aligns with the UAE values that position gifted students as the primary future strength of the society (Younis,

2020). Furthermore, by expanding the view and definition of giftedness (as per Gardner's theory of multiple intelligence), a bigger number of students will be recognised as gifted (in a variety of domains), and hence the country can benefit from gifted potential in a variety of sectors in the country.

Differentiated Model of Giftedness and Talent (DMGT)

The final theory of giftedness adopted in this study is Gagne's (2008) Differentiated Model of Giftedness and Talent (DMGT) – version 2.0. Unlike many other giftedness models highlighting achievement as the central focus of giftedness (Foreman & Renzulli, 2012; Terman, 1920), the core of this model emphasises the evolving progression of giftedness and potential for talent. Gagne (2008) distinguishes clearly between the term gifted and talent as he describes 'gifted' as a natural 'inborn' ability and "high cognitive abilities" (p.1) whereas talent is a skill that can be enhanced over time through practice and experience. Specifically, Gagne (2008) described giftedness as:

"the possession and use of outstanding natural abilities, called aptitudes, in at least one ability domain, to a degree that places an individual at least among the top 10% of age peers" (p. 1).

Talent on the other hand, he defined as:

"The outstanding mastery of systematically developed abilities, called competencies (knowledge and skills), in at least one field of human activity to a degree that places an individual at least among the top 10% of age peers who are or have been active in that field." (Gagné, 2008, p. 1).

To transform gifts into talents, Gagne (2009) argues that a developmental process takes place in which the individual must engage in systematic practicing, learning and training. Further, he presents the talent development process as the conversion of 'inborn' abilities (also referred to as gifts), into systematically developed skills (referred to as talent); Figure 2.3 presents a summarized, visual representation of the DMGT model.
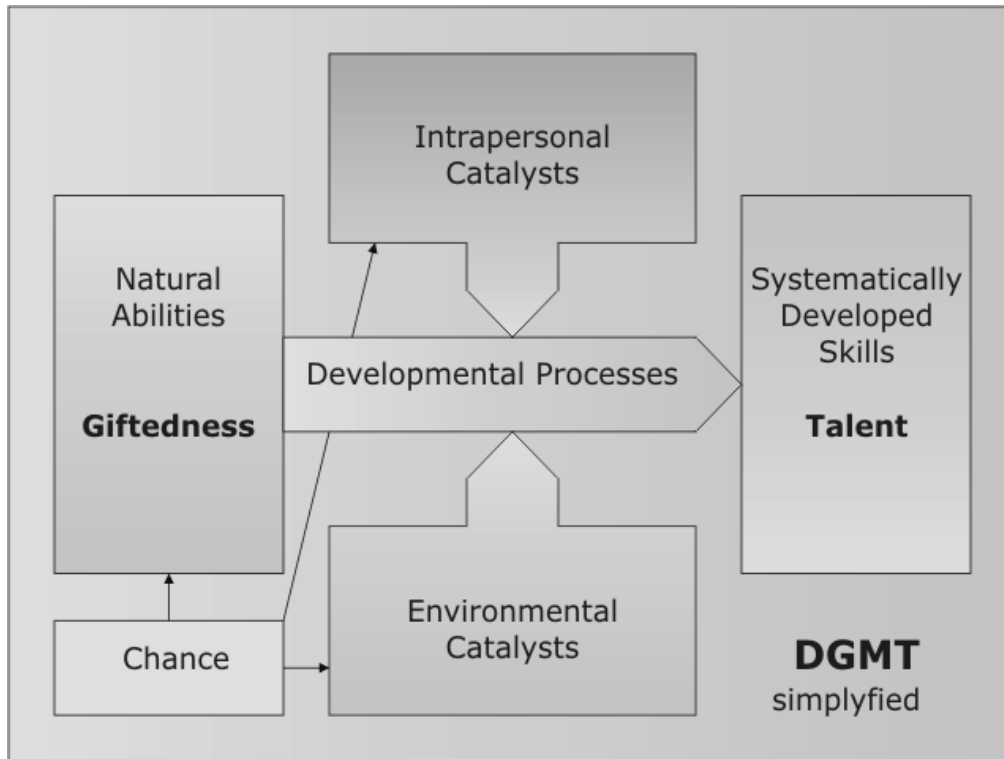
Figure 2. 3 Summarised description of the DMGT 2.0.

Gagne (2012) continues to elaborate that talent is the recognition and awareness of an individual's giftedness and can be developed through intervention, experience, and other influences such as the environment, motivation, self-management and personality. He argues that gifted individuals may possess extraordinary levels of ability, however, are yet to exhibit them in order to classify as gifted. In this sense, the distinct differentiation between the term gifted and talented makes the Differentiated Model of Giftedness and Talent (DMGT) account for a distinct limitation in Renzulli's (1977) Three-Ring Conception Model, in other words task commitment, which has been described as an essential characteristic for giftedness (Renzulli & Reis, 2014).

In sum, Gagne (1992) views giftedness as a child's innate ability developed in to a talent as a product of exposure to the appropriate types of environmental catalysts including parental or

school support, motivation and practice (Clark, 2016). Yet, cases of 'gifted behaviour' have been observed where students manifest their 'inborn' exceptional abilities without having practiced this (Barber & Mueller, 2011; Beckmann & Minnaert, 2018), therefore contradicting with Gagne's hypothesis.

Other than distinguishing between gifted and talent, Gagne (2008) argues that giftedness can be manifested in four areas of aptitude, namely: intelligence (as per the traditional concept previously discussed), creativity (e.g., ingenuity),

socio-affective (can be exhibited in social context such as in leadership), and sensorimotor (e.g., vision, endurance), all areas in which disability can also be manifested. It is for this reason that the Differentiated Model of Giftedness and Talent has received extensive recognition and acceptance in many countries, specifically in relation to inclusive education (Ronksley-Pavia, 2015), the UAE being one of the countries adopting this model. Some scholars (Baum, 2004; Al-Hroub & Whitebread, 2019; Colangelo & Davis, 2003) have argued that the theory bridges the gap between giftedness and disability, an area that several theorists have failed to put in consideration when defining giftedness. The model contributes to the inclusion of twice-exceptional students by linking giftedness (innate ability) to talent (manifesting such talents), as many twice-exceptional students often fail in exhibiting 'hidden' abilities as a result of insufficient school support, low self-esteem and consequently inadequate practice, all areas which (Gagne, 2008; Gagne, 2013) argues must be nurtured in order for giftedness to be manifested. Nevertheless, the DMGT posits that such 'hidden' abilities will only be emerged through the developmental process in which gifts are transformed into talents through systematic training and practice (Gagne, 2013). Thus, an important consideration is that without the recognition of the child's natural gifts and abilities, these twice-exceptional learners may not receive the opportunity to put this inborn ability into practice or training, ultimately leading to the 'loss' of the child's talent.

Gagne's concept of giftedness is unique in nature in that it accounts for environmental and societal factors as part of the impact on an individual's ability to achieve and exhibit giftedness. Furthermore, it is acknowledges those with gifted potential but not yet demonstrating this ability

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or high achievement. For this reason, some scholars (Dai, 2004; Smith, 2004; Henderson, 2018) have argued that the Differentiated Model of Giftedness and Talent, is like Gardner's Multiple Intelligence theory (1983), more applicable as a theory of talent development rather than a theory able to define giftedness. These implications indicate that with the right socio-emotional support and an appropriate teaching environment, children who possess 'hidden' abilities will flourish and be able to transform their giftedness into talent. If schools were to apply this concept with all students, much hidden and 'wasted' potential would be demonstrated and recognised (Duncan & Bishop, 2015). This was true for gifted children or twice-exceptional children, and for all children in the mainstream education setting.

2.2.4 Summing up giftedness

The models and theories of giftedness discussed in this chapter aim to define giftedness, explain talent development, and explore the different domains of ability. Each model looks at giftedness from different viewpoints and addresses various areas of giftedness. The psychometric approach for instance attributes giftedness to a high IQ and argues that giftedness can be measured in quantifiable numbers through aptitude testing (Fernández et al., 2017). In response to the critique on this approach being too rigid in defining giftedness, the multidimensional approach was developed. This approach includes Renzulli's (1977) Three-Ring Conception of Giftedness, Gardner's (1983) theory of Multiple Intelligence, and Gagné83 (1992) Differentiated Model of Giftedness and Talent. Though the theories differ in their main conceptions, they all look at giftedness through a flexible lens that accounts for different ways in which giftedness can be recognised and identified. Unlike the psychometric approach to defining giftedness, the multidimensional approach accounts for students with disabilities and considers that such students may in parallel to their disability demonstrate gifted potential.

Summarizing and defining giftedness remains a challenge for researchers, scholars, and authors (Nielsen, 2010; Dai, 2010; Sternberg et al., 2011; Duncan et al., 2018). The reason for this according to Mönks and Mason (2000) is that without defining the specific research goal, learning context and cultural setting, giftedness simply cannot be defined in an explicit manner. In their article 'Rethinking Giftedness and Gifted Education' Subotnik et al. (2011) proposed a description of giftedness that aims to 'frame' giftedness. They argue that giftedness (a) reflects

societal values, (b) is manifested in outcomes, (c) is domain-specific, (d) is the outcome of combined psychological, biological, psychosocial, and pedagogical factors, and (e) is relative to the ordinary and extraordinary (Subotnik et al., 2011). They also argue that gifted individuals who fulfill their talents in the form of creative contributions will experience high levels of personal satisfaction while producing scientific and practical benefits to society. Similarly, some authors (Hertzog & Kaplan, 2016; Foley-Nicpon et al., 2017; Renzulli & D'Souza, 2012; Renzulli et al., 2006), conclude that the goal in gifted education is not only to identify and challenge such students, but also to create a drive for change and enhancement in the world.

2.3 Gifted with ASD

As discussed in the previous section, there has been no comprehensive consensus on the term giftedness due to its perplexing nature and various factors impacting the agreement on definition. As a result, it is only natural for this reason that there has been no consensus on the definition of twice-exceptionality, as it includes both giftedness and disability. Disability is another complex term that has been defined differently by different scholars and across cultures (French & Swain, 2008; Mcclean & Grey, 2012; Bailey et al., 2015). To better understand the cultural understanding of disability in the context of this study, two key models of disability, the individual model and the social model of disability, are described and adopted in this study. These are further explained the in upcoming sections of this chapter.

2.3.1 Models of disability

Models of disability serve as instruments for defining disability and as a foundation for societal and governmental plans to address the needs of the those with disabilities (Retief & Letšosa, 2018). Models of disabilities have been viewed with skepticism because it has been argued that they do not represent the real world, promote a limited way of thinking, and rarely provide specific instructions for acting (Terzi, 2004). However, Levitt, (2017) argues that they provide a helpful foundation for understanding disability concerns as well as the viewpoint of individuals who developed and used the models. Furthermore, models of disability offer insights into how attitudes, preconceptions, and prejudices affect the individual as well as the community on a larger scale (Dirth & Branscombe, 2017).

Models of disability can be used to demonstrate how society allows or restricts access for persons with disabilities to education, jobs, services, and political power (Levitt, 2017). There are two main ideologies that influence models of disability; the first, the individual model of disability, views people with disabilities as being reliant on society, being 'intrinsically sick' and need 'fixing' (French & Swain, 2004). Paternalism, segregation, and discrimination may result from this. The second ideology is the social model of disability, and views people with disabilities as consumers of society's goods and services, meaning that disability arises as a result of social barriers, rather than from the 'disabled' person. Choice, empowerment, equality of

human rights, and integration follow from this (Oliver, 2013; Berghs et al., 2019).

It should be noted that the models should not be viewed as a succession of exclusive choices, each of which is better than or replaces the prior sets. Their growth and popularity offer a representation of how social views around disability are changing over time and where they are at any particular moment (Masala & Petretto, 2008). Moreover, models evolve along with society, therefore, the long-term goal should be to create and implement a set of models that will empower persons with disabilities and grant them equal rights in society. Currently, the two models of disabilities discussed are the widely adopted models worldwide (Jackson, 2018). Priestley (2003) divided these two models into sub-categories of disability models; these are represented in Table 2.2.

Table 2. 2 Sub-categories of the models of disability

The individual model of disability	The social model of disability
• The medical model	• The structural model
• The psychological model	• The Empowering Model of Disability
• The tragedy model	• The affirmative/non-tragedy model
• The functional model	• The Human Rights Based Model

While other models of disability exist, this particular study adopts the two mentioned models, the individual model and social model of disability (and the sub-models presented in Table 2.2). It is important to note that the researcher is not undermining the other models, however it was deemed appropriate that these two models would be adopted for the following reasons:

- Both models cover an umbrella of elements (different models) that offer further in-depth representation of cultural influence.
- Because giftedness and autism touches on the individual abilities and characteristics, the individual model is most relevant to be emphasized
- Because giftedness is identified and developed by teachers and caregivers (social

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population), the social model will help in identifying cultural views on disability and how this can be developed to better serve the gifted.

- Because autism is often looked at from a 'disability' perspective, the medical model will be useful to explain perspectives on disability

- Other models were not focused on for instance the religious model as it is highly complex due to its relation to the cultural context and personal beliefs, which both contain elements that are not the focus of this study.

The different disability models can assist in better comprehending how disability is perceived in various cultures, school settings, and parents, and can therefore help in forming suitable frameworks for intervention and support for such individuals in the suitable context. French and Swain (2008) contested that these disability models depict the problems that these disability models depict with comprehending how disability is perceived in various cultures, school settings, and parents (Ronksley-Pavia, 2015). Furthermore, it is essential to comprehend the cultural influence of teaching students with a disability and understand which model is applied in an educational context. By doing so, the teaching framework and strategies placed out for children with disabilities can be better understood.

The individual model of disability

The individual model of disability views the person as the core of the problem in contrast to the social model that sees a disabling society as the core source of disability. The individual model initially evolved with the medical model from the concepts of 'normal' and 'abnormal' in relation to body, mind, and brain functions (Wolbring, 2001). Due to irregularities and deviation from the norm, People with Disabilities (PWD) were classified as 'abnormal' individuals in need of medicalization and intervention. The medical model views the person with disability as the core of the problem that can only be 'cured' or treated with the authority of medical profession (Drum, 2009). This model has dominated the formation of disability policy as a result of its aim to alleviate the physical and mental symptoms of the individual with disability (Ronksley-Pavia, 2015). For this very same reason, the model has been criticized by Beaudry (2016) due to its patriarchal approach in 'fixing' the problem with good intentions as PWD are perceived as 'abnormal' and unable to take decisions on their own (Drum, 2009), a justification for the

discrimination and institutionalization of such individuals, restricting their potential for growth and inclusion in society.

The tragedy model of disability resembles the medical viewpoint in that PWDs are perceived as victims of circumstances "a deficit, a personal burden and a tragedy" (Wilder, 2006, p. 2), something "'abnormal' and to be avoided at all costs" (Oliver & Barnes, 1996, p. 66). Like the medical framework, this model has been highly criticized by scholars (Areheart, 2008; Haegele & Hodge, 2016) because of its disempowering approach towards PWD and its portrayal of such individuals as dreadful victims who are unable to survive without the support and charity of society. Societies that base the education system on this model are more likely to deal with students with a disability on an individual-centered approach which views the student as a problematic area that requires professional intervention (Priestley, 2005). For this reason, students with a disability diagnosis who also display gifted potential are more likely to be placed in the category of 'problematic/disability' rather than 'potential' (Ronksley-Pavia, 2015; Ayoub & Aljughaiman, 2016).

Nevertheless, this model accounts for individual differences and needs and so considers the individually required support for each student. In this sense, the individual model of disability may address individual support for the disability but disregard talent and potential, an issue that the social model of disability addresses.

The social model of disability

The social model of disability developed as a drive to shift the negative perception on PWD (as in the individual model of disability) by removing societal and attitudinal obstacles (Priestley, 2001). This model views society as being the real hurdle of disability due to destructive attitudes, disabling environment and inadequate opportunities to those with disability – negatively impacting the quality of life for PWD (Priestley, 2001; Bianco, 2005). As the disability often cannot be cured or changed, Coleridge (2000) quotes that PWD are "*still of equal intrinsic worth . . . [and] it is society that must come to terms with their disability and accept them as they are*" still of equal intrinsic worth . . . [and] it is abling the individual rather than their actual disability.

Once societies start adopting the social model of disability, the problem has become in society

rather than the person. Thus, the society is required to make changes to accommodate such students' needs in school, and work (Bradshaw, 2009; Hornby, 2015; Lawson, 2005). In the social model of disability, people with disabilities are viewed as people of intrinsic worth, which in turn would open more doors for equal opportunities for such students (French & Swain, 2008; Stubbs, 2009; Lovett, 2013). This gives rise to growth of potential of such students with a positive outlook.

Although the social model of disability has received extensive support (Lawson, 2005; Blanchard et al., 2018) for its approach to empower PWD and enhance societal environment to better meet the needs of such individuals, it has been argued that it is nearly impossible to provide inclusion for all people with disabilities while making the environmental adjustment necessary to suit everybody's needs (Ronksley-Pavia, 2015; Blanchard et al., 2018). For this reason, Ronksley-Pavia (2015) argues that there must be a paradigm shift in the way provisions are offered for this population group by decreasing healthcare intrusiveness and increasing the responsibility and independency for such individuals to take control of their own lives. Although the argument seems logical and constructive, it raises concerns as to the severity of disability and if this is applicable in cases such as in autistic individuals with no or limited communication, self-help skills, and overall adaptation skills. Even with minimal intrusiveness and increased independency such individuals will still require intensive individualised intervention (Mcclean, 2012; Diamond, 2018). Thus, the concept of the social model placing the entire responsibility of PWD on society is a radical thought.

It has been argued by some (Crow, 1996; Barnes, 2012) that the social model of disability disregards individual experiences and differences, therefore, leaving no room for necessary individualised intervention, a critique addressed by the affirmative or non-tragedy model of disability (Swain and French, 2000; Flynn, 2022). As depicted by its name, the affirmative or non-tragedy model of disability portrays PWD through a positive and empowering light (Flynn, 2022). The model builds on the social framework and opposes the dominant 'tragedy' presumptions about people with disabilities, their experiences, and lifestyles (French & Swain, 2008). In opposition to the tragedy model, it seeks to develop an understanding of deviation being a fundamental feature in neurodivergent individuals, rather than viewing this neurodivergence as all there is to the person (French & Swain, 2008). For this reason, the

affirmative model addresses an aspect of disability that most other disability models overlook – namely giftedness. By viewing the disability as part (rather than the whole) of the personality of an individual, more room is left to view other features of the personality such as giftedness that is often disguised by disability.

Both the social and the individual model of disability tackle various aspects of the twice-exceptional student while failing to address others. In sum, it can be argued that the individual model of disability addresses the needs of the twice-exception (2)e student, where features of disability are manifested, while it tends to disregard gifted potential. However, the social model works in opposition to the individual model, and it addresses gifted potential and positive aspects of 2e students but does not account for individual needs where neurodivergence is manifested. Figure 2.4 describes the interaction of these two models and how they address the needs of 2e students.
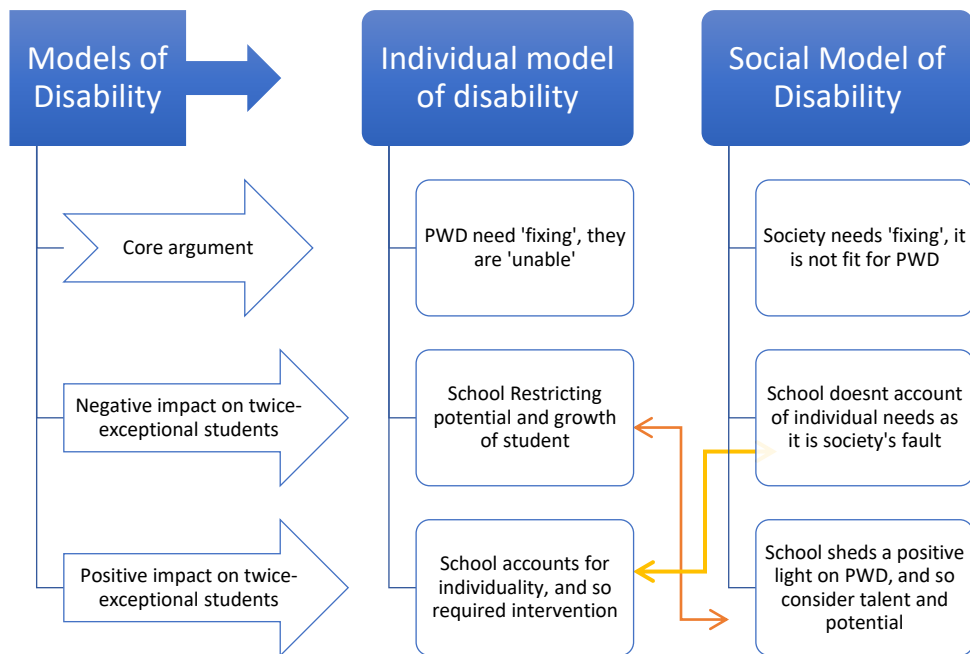
Figure 2. 4 Models of disability and their impact on twice-exceptional students

2.3.2 Twice exceptional students – definition and identification

Twice-exceptional students have been described as those who fit the definition of gifted or talented and simultaneously fit the diagnosis of a learning disability (Barber & Mueller, 2011). Due to the complexity in defining both giftedness as well as disability, it is only natural that the term 'twice-exceptional' has not yet been comprehensively established. According to Jacobs (2012), twice-exceptional students possess an extraordinary gift that makes them capable of high achievements in various domains, but correspondingly they display a learning disability that often causes challenges in academic performance and social relations. Such disabilities are typically manifested in the form of an emotional, developmental, physical, or sensory disorder, including Attention-Deficit Hyperactive Disorder (ADHD), Autism Spectrum Disorder (ASD), and Emotional Disturbance (ED) (Neu, 2003; Baum et al., 2014; Foley-Nicpon & Kim, 2018).

Because of this bizarre paradox of two extremities, educators often find it hard to recognize students on both axes, 'gifted', meaning displaying of exceptional ability and 'disabled', meaning displaying of inability (Silverman, 2003). Tannenbaum and Baldwin (1983) explained that this evident paradox is perceived as "entirely incompatible and irreconcilable in any single child, yet it exists" (p. 12). The twice-exceptional student shares many traits with gifted peers such as a well-developed vocabulary, intense interest in specific subject, divergent cognitive processes and high creativity (Trail, 2011; Wood & Estrada-Hernández, 2009). Paradoxically, they also share many common characteristics of those with a disability, including difficulties in planning and organisation, communication, motor skills and overall inconsistent performance in school (Wood & Estrada-Hernández, 2009). Because of their perplexing co-occurrence, it is common for teachers and healthcare professionals to identify one trait of the twice-exceptional student and overlook the other (Brody & Mills, 1997). This is explained by the masking effect, also referred to as the masking hypothesis (Assouline et al., 2006), which occurs when such students demonstrate the identical gifted tendencies as their neuro-typical gifted peers while also displaying a hidden disability. Similarly, twice-exceptional students may demonstrate challenges identical to those with a disability that hides (masks) their giftedness (Brody & Mills, 1997). It is therefore not uncommon for such students to go unidentified in school settings, causing confusion to teachers in their learning process. Moreover, misclassified and overlooked, twice-

exceptional students often fall between the cracks of gifted provisions and special education, leading to inadequate intervention and services suitable to their unique needs (Gilger, 2013). Indeed, Silverman (2003) stated that these children "are often teased by their classmates, misunderstood by their teachers, disqualified from gifted programs due to their deficiencies, and unserved by special education because of their strengths" (p. 4). Figure 2.5 demonstrates the paradoxical interaction between disability and giftedness.
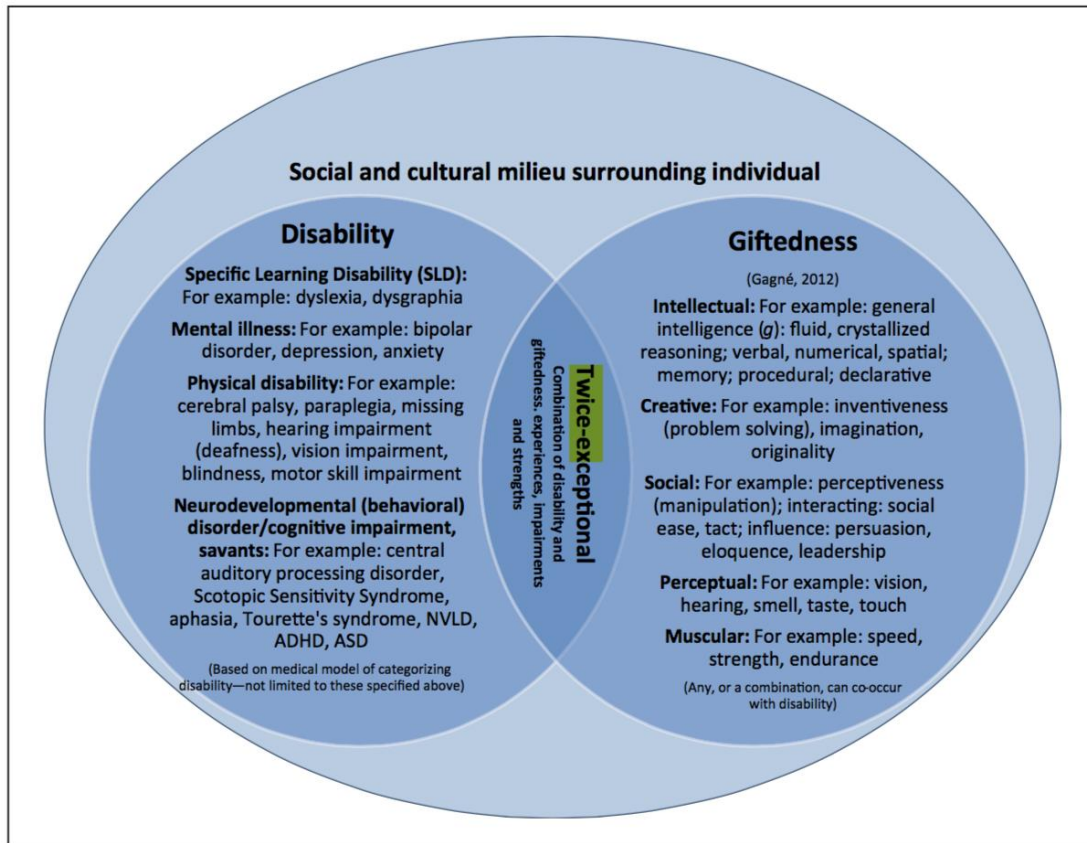
Figure 2. 5 Inside the twice-exceptional model. Adapted from Ronksley-Pavia (2015)

Baum, Owen & Dixon (1991) and McCoach et al. (2001) have divided 2e students into three categories, as per the camouflaging effect:

1. The first type of students are those with a milder learning disability who often display high academic performance. As a result, students in this group receive gifted provisions, but no intervention for their other needs in which challenges are manifested and so their

giftedness masks their disability. This has been observed in many cases with milder forms of ASD or Asperger syndrome (Little, 2002).

2. The second type includes gifted learners who display a recognizable learning difficulty, and so do not receive gifted services. In this case the disability masks the giftedness. This has been observed in ASD cases in which severe behavioral manifestations disguises exceptional talent, also referred to as savant syndrome (Cao, 2013).

3. Finally, the third group of twice-exceptional students are those who do not receive provisions neither for their learning disability nor for their giftedness. In such cases, both elements mask each other.

These perplexing and paradoxical aspects of 2e students, indicate a need for an established, agreed upon methodology for identifying this group of exceptional students. The first reason for this is to meet such students' needs and potential, leading to their emotional well-being and self-image (Durlak et al., 2011; Neihart, 2016). Secondly, scholars such as Goleman (2006) and Renzulli et al., (2006) have highlighted the societal value such students can add and their impact on change, once identified correctly. Lastly, multiple studies (Gardner, 2008; Salem, 2020; Maddocks, 2018) have demonstrated that a self-comprehension of such students' diagnosis may help them in forming compensation strategies that have been proven highly efficient in the school setting. Having said that, given the difficulty in identifying giftedness on its own, expected challenges are likely to arise when attempting to develop an established methodology or assessment tool for identifying twice-exceptional students, especially considering the different diagnoses of disabilities (Baldwin et al., 2015; Foley-Nicpon & Kim, 2018; Amend, 2018).

2.3.3 ASD and Giftedness – the masking effect

The research on twice-exceptionality (Barber & Mueller, 2011; Gross, 1998; Baldwin et al., 2015) has been limited and the literature suggests that the main cause of this can be tracked back to the challenge in defining this target population. In cases of twice-exceptionality in which the student is diagnosed with ASD, identification may be even more challenging than other cases in which the disability is very distinctive from the gifted component (Happé & Vital, 2009). Burger-Veltmeijer et al. (2014) and Burger-Veltmeijer et al. (2016) argue that individuals with

ASD and gifted individuals share many characteristics which makes identification more challenging for healthcare professionals, specifically when professionals are often skilled in either giftedness or autism, but seldom in both. These common traits have been reported by multiple researchers (Donnelly & Altman, 1994; Neihart, 2000; Cash, 1999; Huber, 2007; Burger-Veltmeijer et al., 2016; Foley-Nicpon et al., 2021) as:

- Focused attention/obsession to detail
- Creative/divergent thinking
- Uneven development
- Verbal/language discrepancy
- Memory differences

Casanova et al. (2007) argued that some of these characteristics, such as creative or divergent thinking and intense focus or obsession to detail, could be explained by a neurobiological overlap between ASD and intellectual giftedness. Interestingly, Gallagher and Gallagher (2002) added to these shared features of ASD and gifted individuals 'social impairment'. They argued that a minority of gifted children struggle socially struggle and could be aggravated with the co-occurrence of ASD. Elaborating on this, they state:

"Consider combining the social inattention, motor clumsiness, and high verbal skill of Asperger's Syndrome with such traits as independent thinking, constant questioning, and heightened emotional sensitivity (. . .). It is the perfect formula for a social pariah." (p. 9).

The common traits shared between individuals with ASD and giftedness can collide in perplexing ways, often impeding accurate identification of such students in school (Amend et al., 2009). Not only does this camouflaging effect (also referred to as masking effect) result in an erroneous diagnosis but it also leads to the creation of an inappropriate educational plan (Neihart, 2000) that is founded on the incorrect assessment of individual strengths and weaknesses. A typical example of this mis-identification can be manifested in a student with ASD who displays advanced rote abilities that can be mistaken by school professionals as advanced comprehension (Huber, 2007).

Concurrently, the advanced cognitive processing of an intellectually gifted student may be disregarded as a result of poor learning strategies in the classroom. According to Moon (2002) and Hertzog & Kaplan (2016), Al-Ghawi, 2017), scholars in the field of gifted education hypothesized that a gifted child may actually be diagnosed and treated for Attention Deficit Hyperactivity Disorder (ADHD) disorder as the symptoms overlap with features of giftedness, although the child does not actually display this disorder. Francis et al. (2016) claimed that this confounding and often times erroneous process of identification leads to inappropriate provisions offered in which the student receives inappropriate intellectual challenges (on both axis), struggle with low motivation, poor self-esteem and even depression. (Grandin, 2004) stated that the label of any disability, let alone ASD, could hinder the development of gifted talents whether in scientific areas or other. She remarked informing one mother before the term Asperger syndrome was widely acknowledged that her child would be identified as intellectually gifted (Grandin, 2004) – this again settling on the challenge in distinguishing between the two elements. Figure 2.6 below compares the characteristics of students identified as gifted, ASD and twice-exceptional. The circle in the middle display the overlapping areas of both target groups and explain how the similarity in characteristics may cause misidentification of such students.
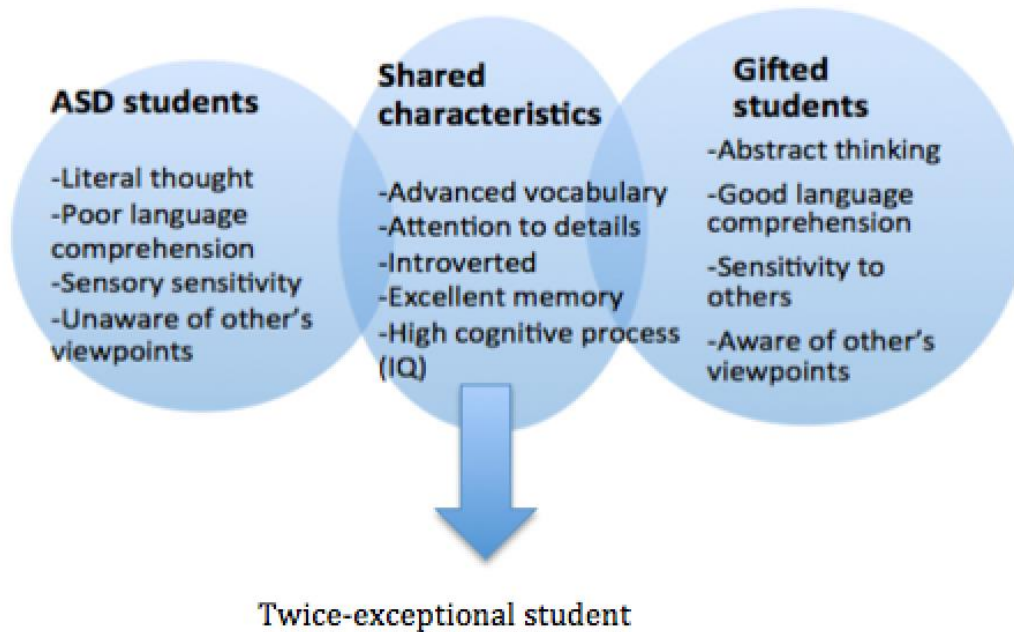
Figure 2. 6 Comparison of characteristics between gifted and autistic learners adopted from Little (2002)

Temple Grandin, autism advocate and author and professor of animal sciences, is a phenomenal example of twice-exceptionality. By overcoming many of the challenging characteristics of autism, she has gained extensive attention in the media trying to 'explain' the autistic mind. In her many books describing autism and how she sees the world, she describes what it is like being twice-exceptional. She made a strong statement claiming that too many smart children are becoming their label (of autism) and that "teachers don't know what to do with these smart kids" (Grandin, 2010, n.p.). She continues to argue that the abilities of such students are uneven, and that children who excel in one area such as for instance math, often perform poorly in other domains. For example, Einstein was poor in foreign language and spelling, while the great physicist Richard Feynman, did poorly in some subjects (Grandin, 2001). Implications of these considerations suggest the need to examine other aspects of these overlapping features such as the neurobiological similarity between the brains of individuals identified as gifted and ASD.

Furthermore, it would be interesting to examine if students identified as gifted may display characteristics of ASD rather than merely aiming to identify students with ASD who may exhibit hidden potential (Burger-Veltmeijer & Minnaert, 2011; Burger-Veltmeijer et al., 2016). Such studies may pave the way for new research into gifted education as well as inclusive education that may ultimately assist in the formation of a novel educational framework for such exceptional students, a notion that is discussed further in the following section.

2.4 Gifted learners with ASD in school

Due to the great challenges in identifying and understanding this group of exceptional students, the efficiency of the provisions offered for this target group has been under-researched (Duncan & Bishop, 2015; Baldwin et al., 2015). In order to comprehend the best practices and how such needs of students could be met, the currently proposed educational strategies for gifted students with ASD must first be investigated. Finding theoretical and practical models to fit the needs of the gifted learners with ASD in school has been scarce (Luor et al., 2021; Baum et al., 2021). For this reason, the educational strategies proposed in the literature for gifted students with ASD will first be presented and followed by educational approaches used in gifted education but can also apply to those with ASD.

2.4.1 Provision on offer to gifted students with ASD

The literature on gifted students with ASD has demonstrated that such learners may struggle in their socio-emotional development as a result of challenges in social skills (Peterson, 2006; Reis & Colbert, 2004; Durlak et al., 2011; Jahromi et al., 2021). In order to tackle this issue, certain educational strategies and approaches have been set in place for this group of students with the intention of accelerating learning experiences as well as encouraging social skill building through social-emotional support (Neihart, 2008). Peterson (2006) for instance suggested that group work and enrichment would benefit gifted students with ASD in school, with a focus on developing the expressive language of such students, providing them with tools to express emotions of challenges, joy, or frustration - a consideration that may drive change in the educational provisions for gifted students with ASD. Weinfeld et al. (2002) argued that classroom strategies should aim to develop strengths of students by providing classroom organisation that still offers flexibility in its curriculum and instruction-based setting. This may help learners with ASD who are in need of organisation and structure in the classroom for effective learning (Willard-Holt et al., 2013). Meanwhile, Foley Nicpon et al. (2011) proposed from their extensive literature review focusing on students' abilities by giving them the freedom to explore their strengths and potential while also considering areas in which they require support. This was also confirmed by other scholars (Leggett et al., 2010; Pereles et al., 2009) who emphasised the importance of strength-oriented accommodations, grouping of peers with

same and mixed ability and an unconditional acceptance from adults toward both areas of exceptionality.

Some researchers (Assouline & Whiteman, 2011; Schultz, 2012) have claimed that classroom strategies should be student-centered with an emphasis on both abilities as well as areas of need in which behavioral issues must be addressed. This applies particularly to students with ASD who are often exhibiting challenging behaviours due to inappropriate teaching strategies leading the student to boredom, frustration and confusion. For learners with ASD, (Lovecky, 2004) suggested a number of teaching strategies relating to visual-spatial learning styles, a notion that has been proved efficient by a vast number of scholars (Hart Barnett et al., 2017; Diamond, 2018; Rutherford et al., 2020; Bateman et al., 2022) who emphasize the importance of visual aid in teaching students with ASD. Autistic learners typically struggle in various aspects of the mainstream school context including understanding of abstract concepts (Cunningham, 2022), the need for sameness or routine (Agripino-Ramos et al., 2019), and the need for prediction (Cannon et al., 2021). Visual aids can support students to manage such challenges, cope better in the school environment, and ultimately manifest exceptional potential that may be 'hidden' as a result of the masking effect (Cain et al., 2019).

In their study examining the perspectives of twice-exceptional learners on effective learning strategies, Willard-Holt et al. (2013) summarised strategies from the existing literature that were aimed at enhancing giftedness as well as strategies to compensate for the learning disability in the classroom. These strategies are presented in Table 2.3.

Table 2. 3 Efficient teaching strategies for gifted learners with ASD derived from Willard-Holt et al. (2013)

Strategies to enhance giftedness	Strategies to compensate for weaknesses
• Highlight critical and creative thinking (Hua, 2002; Nielsen, 2002) • Use various learning styles in multiple intelligences (Mahmood et al., 2022) • Focus on areas of interests of students and explore it in-depth • Arrange supervision with mentor • Assignment modification to display giftedness ((Foley-Nicpon et al., 2021; Reider, 2021) • Let student select project by own choice • Use of differentiated assessment (Baum et al., 2001) • Offer open-ended challenges (Baum et al., 1991) • Use metacognitive strategies (Hannah and Shore, 2008) • Use visual imagery, rhythm, and music (Cash, 1999)	• Provide extra time for exams and assignments (Nielsen, 2002). • Use visual aid to convey meaning • Offer time for personal discussions • Teach stress management techniques (Taghdiri et al., 2021) • Give instructions through multiple modalities (Manasawala & Desai, 2019) • Use various strategies for acquiring information from student (Baum et al., 1991) • Use technology for student to express themselves • Use clear cuing in transitions (Assouline and Whiteman, 2011) • Provide multisensory experiences • Make expectations very clear (Pereles et al., 2009) • Assignment modification according to student (Bradley & Calvin, 1998; Baum et al., 1991; VanTassel-Baska and Stambaugh, 2006) • Give concrete illustrations of abstract conceptions (Whitmore and Maker, 1985; Yssel et al., 2010)

The combined strategies (mentioned in Table 2.3) of both enhancing giftedness and compensating for weaknesses can act as a well-structured approach to gifted students with ASD in mainstream school settings. Combining strategies like these, which focus both on academic as well as behavioral aspects of teaching can work in favor of both the student and the educator teaching this group of learners. Particularly with students whose giftedness mask their autism, strategies such as giving concrete illustrations of abstract conceptions and using visual aids can facilitate learning to a great extent (Kidder & McDonnell, 2017) as students may struggle with this aspect of learning only while exceling in other areas. On the other hand, where the students' autism is masking their giftedness, assessment and assignment modification can be applied when making such adjustments in modules or areas in which the student excels, combined with other behavioral strategies that enhances the students' overall well-being and school experience. In addition to these wide-ranging teaching techniques, the following classroom strategies have been reported as effective by students with ASD:

- Avoiding methaphors and abtract language
- Having a set routine (schedule) – avoid change
- Avoid sensory stimulations (make classroom less disturbing)
- Direct question/instruction to student directly rather than to all class

(Yssel et al., 2010).

Some of these presented strategies can be linked to a study conducted by De Verdier et al. (2018) in which pupils with ASD reported challenging and successful teaching strategies that they had been exposed to. The study presented two main themes; the first theme was **confusion**, which was demonstrated in situations where abstract language was used (which goes in line with one of the suggested strategies for autism in Table 2.3) and when students were given unclear expectations with unstructured tasks. One student specifically reported:

"The teacher needs to tell me exactly what to take out and what to do, otherwise I don't know

where to start" (De Verdier et al., 2018, p. 524).

The second theme of the study was handling the surrounding stimuli. This was reported by students as distracting noises, ongoing multiple tasks, and when other students disturbed them while trying to complete a task (De Verdier et al., 2018). This aligns with Yssel et al.'s (2010) recommendations for avoiding sensory stimulations (making classroom less disturbing) for gifted learners with ASD. A key takeaway from the presented strategies and the above discussion is the need for individualisation, and the need to develop a program or plan which includes strategies that works with the child, rather than generalising such an approach to all gifted children with ASD (Lewis et al., 2020).

Gifted provision

Scholars like Davis and Rimm (2004) and Şahin & Levent, (2015) have summarized some of the popular teaching methods of gifted students into: acceleration, enrichment learning and curriculum modification. Although these teaching methods have been associated mainly with gifted education, they have been selected as they can apply to gifted learners with an autism diagnosis. Each method will be presented briefly in this section.

Acceleration

According to various authors (Davis & Rimm, 2004; VanTassel-Baska & Stambaugh, 2006), acceleration consists of many phases (but are not limited to) grade-skipping (in which the pupil advances to a higher grade), subject-skipping (in which the students studies only specific subjects in higher grades), and curriculum compacting (where the curriculum is compressed in a way that the student complete it in a shorter time frame). Although this method has proven effective with gifted students (Chalwell & Cumming, 2019), it is questionable if gifted learners with ASD will benefit from it. There are a number of researchers (Lewis, 2002; Colangelo et al., 2012; Cain et al., 2019) who believe that acceleration can be efficient in subjects such as math

and sciences, which are regarded as linear-sequential subjects that are constructed on previous knowledge and follow a systematic pattern. Other subjects that require more comprehension like literature, he argued would not be as easy due to the nature of the subject itself. This agrees with the previous notion discussed regarding the cognitive process of gifted learners with ASD (Hsiao-Lan, 2018). Subjects that can be broken into components with a systematic pattern are those in which individuals with ASD are more likely to excel in due to the systematic information processing that has been demonstrated in autistic learners (Stins & Emck, 2018). For this reason, it can be argued that gifted learners with ASD may benefit from subject-skipping within the academic areas in which they excel while remaining in the same grade.

Furthermore, the reason learners with ASD would benefit from subject-skipping rather than grade-skipping is the consideration of their emotional/social challenges that are typically under-developed while some academic areas are over-developed. Subject-skipping can in this way foster accelerated learning in those particular subjects; therefore, the student receives appropriate intellectual challenges, while it offers an opportunity and time to foster social-emotional development relevant to age (Assouline et al., 2017). This aligns with Baum et al. (2001) who argue that grade-skipping may be blamed for social and emotional problems in younger students identified as gifted because of the discrepancy in age and thought process between students. Thus, the ideal manner in using acceleration with gifted learners with ASD would be to use subject-skipping in modules where such students excel rather than grade-skipping.

Enrichment in the form of grouping

The debate on the efficiency of group work for gifted learners with ASD has been controversial over the years with scholars arguing for and against it (Foley-Nicpon et al., 2021). While some researchers (Brulles et al., 2010; Preckel et al., 2017) have opted for grouping to foster creativity, cooperation and social skills, others (Fiedler et al., 2002; Feldhusen & Moon, 1992) have warned that this form of teaching works against the needs of such pupils in that it burdens the student with social expectations (VanTassel-Baska and Stambaugh, 2006). Davis and Rimm (2004) have divided group work to two distinct types: homogenous, which is based on grouping as per

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students' similar abilities, and heterogenous, in which groups are based on mixed-abilities. Moreover, there are other scholars (Cramond et al., 2002, Ledford & Wehby, 2015) who have argued that heterogeneous grouping does not work in favour of gifted learners with ASD as pupils in this group may exhibit superior ability which is often overlooked due to the teacher's lack of time to teach students of different abilities in the same time and place. As this group of students excel in certain academic areas, it is likely for them to report boredom in mixed-ability groups in which they may feel under-challenged (Cain et al., 2019). Such experiences of students with ASD being intellectually under-challenged have been reported by Buttriss and Callander (2005) to not only cause frustration, but also leads to manifestation of behaviours such as disruption, stereotypical behaviours and aggression in the classroom. Consequently, this may lead to segregation of such students and sheds light on students' disability rather than giftedness. The vicious cycle of the mixed-ability grouping for students with ASD is displayed in Figure 2.7.
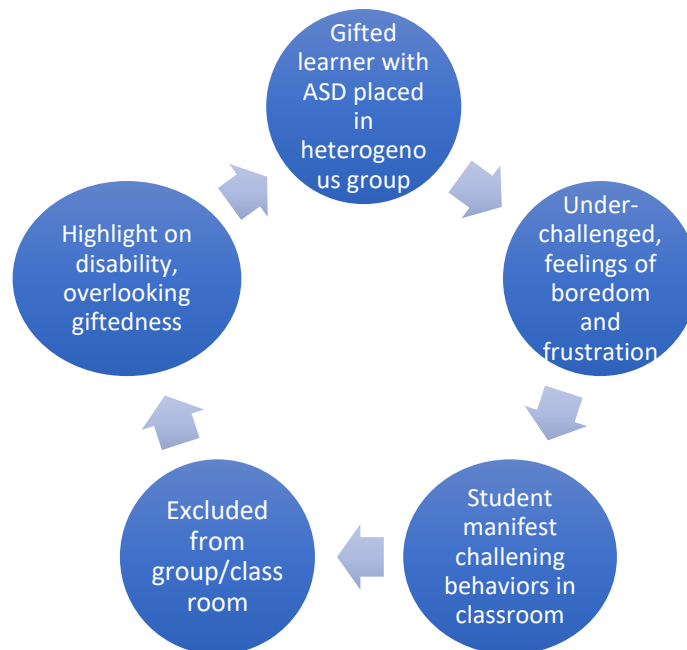
Figure 2. 7 Vicious cycle of grouping ASD students in heterogenous group

Homogenous groups on the contrary, have been deemed as a more suitable option for this group of students, as learners in this group are often on the same ability in thought process and performance, and so the cognitive challenges presented in the group is likely to foster group work and achievement (Fiedler et al., 2002). Having said that, the argument still remains though, that classifying students in same-ability groups restricts student progression, trapping them in the same unchanged surrounding and leaving little space for growth and divergent thinking (Cain et al., 2019). Homogenous groups may also lead to social labels of groups in which some children, with higher ability, may be stereotyped as 'nerds' while groups of the poor performers are labeled as 'stupid' (Peterson & Ray, 2006; Gaffney et al., 2019; Ronksley-Pavia et al., 2019).

In sum, there has been opposing views in the literature on grouping gifted learners with ASD in school. While some argue that grouping fosters social-emotional development, others claim that it restricts such students learning experience. Pupils with ASD in particular struggle with anxiety in social settings in which they are expected to comprehend social cues, interactions and react accordingly (Kuusikko et al., 2008). For this reason, Cramond et al., (2002) allege that this teaching method aggravates such students and ultimately leads to an entire negative school experience. However, as with all other students in general, it is crucial to note that one size does not fit all, and that gifted learners with ASD may benefit from some sort of grouping if implemented in the approach relevant to their needs.

Curriculum adjustments

One prominent method used for supporting both people identified as gifted and people diagnosed with a learning disability is curriculum adjustments (VanTassel-Baska & Baska, 2021) These include but are not limited to:

- curriculum accommodation, in which the student is anticipated to learn the same content as peers but through alternative teaching strategies

- curriculum modification, which implies substantial changes to both the learning outcomes as well as content. This is typically individualised to the student's ability.

- Curriculum differentiation, in which the student moves to a superior level in process, content and concept. (Baum et al., 2001; Terwel, 2005; VanTassel-Baska & Brown, 2021)

The paradox of twice-exceptionality has caused challenges for school professionals in creating a set curriculum that meets the needs of students who excel vastly in particular areas and demonstrate great challenges in others (Missett, et al., 2016). For this reason, it has been recommended that various methods of curriculum adjustments are applied for this exclusive target group to create an integrated curriculum (Omdal, 2015). For a learner with ASD who excels in particular subjects such as for instance math and science, curriculum differentiation may be convenient for the student to advance to a superior level and foster growth. Meanwhile the same student may struggle greatly with other subjects such as literature and social disciplines in which curriculum modification may be useful to adjust the academic expectations of this pupil according to her ability (Tomlinson et al., 2002). Lastly, curriculum accommodation may be of great advantage to students with ASD as they have the ability to learn the same content as their peers but through an alternate acquisition mode, which is one of the widely proposed educational strategies for such learners. They may for instance learn challenging subjects through visual aids as opposed to the traditional teaching methods that require abstract cognitive processes (Kidder & McDonnell, 2017). As previously discussed, research has commonly supported the efficiency of visual support in learning for students with ASD (Foster-Cohen & Mirfin-Veitch, 2015; Hart Barnett et al., 2017; Diamond, 2018).

One further provision that is of great importance when serving this group of learners is the Individualised Education Plan (IEP) (Baum & Novak, 2010). An IEP is an education plan individualised for a student's need based on ability, strengths, and weaknesses. The purpose of it is to assist a student in meeting the educational outcomes beyond their current skills (Al-Shammari & Hornby, 2020). Therefore, it is important to note that an accurate assessment that

evaluates students' abilities must be conducted by educators (or the involved IEP team) to form a suitable plan that meets the individual needs of each student. In order to form an appropriate IEP for gifted learners with ASD, strengths and weaknesses of such students can be summarised (as discussed in this chapter) into weaknesses in social areas and strengths in subject-specific domains. Therefore, it would be beneficial for such students' IEPs to target skill acquisition in their social weaknesses, while challenging them in their academic strengths. Such an IEP should for instance target weaknesses such as the ability to understand others, maintain friendships and comprehend abstract concepts, attributes that characterise ASD (Matson et al., 2007).

Literature (Reis & Colbert, 2004; Assouline et al., 2012; Lakin & Wai, 2020) has demonstrated that there is a general insufficient emphasis on the social development of young students in schools and that the education system is founded primarily on the notion of academic performance (Ayoub & Aljughaiman, 2016), a concept that ought to be changed in order to foster a comprehensive development of the child. From an academic viewpoint, (Aguirre & Hernandez, 2021) claimed that an IEP would still need to challenge the student on the academic level in domains in which the student excels. Thus, it is essential to note that a gifted learner with ASD would benefit from an IEP in which academic targets exceed her current ability. In sum, an individualised plan for this unique group of students would consist of objectives targeting social weaknesses in addition to academic goals to accelerate the performance in areas in which such students excel. By doing so, the needs of these students are individualised to accommodate for weaknesses and strengths, a focus that will be discussed in in the forthcoming section. Although the development of general school skills are important for such students, the social and emotional well-being is a further point of focus that ought to be emphasised when considering meeting the needs of these learners (Baum et al., 2001; Manasawala & Desai, 2019).

Summarising the notion of educational strategies and approaches offered for gifted learners with ASD, it can be concluded that this group of learners require an individualised approach in which a number of strategies are used to foster giftedness and address areas of weaknesses (Foley-Nicpon et al., 2012). It is important to note that such strategies have been proposed based on

'best practices' set out by experts and researchers, rather than the students themselves. Coleman et al. (2015), Danker et al. (2019) and Cunningham (2022) have argued that the student voice plays a significant role in research as well as practical implications, and hence should be an essential part of any conducted research. For this reason, the next section of this chapter (section 2.4.2) presents the findings from the literature of lived experiences of gifted students with ASD in the school setting.

2.4.2 Lived Experiences of gifted learners with ASD in school

To understand how gifted learners with ASD perceive their school experience, this section presents a number of studies and research conducted globally that examines the lived experiences of this group of learners. As one of the research objectives of this study is to capture and expose students' perspectives, it is essential to present the previously conducted research on this matter. Literature examining the experiences of this exceptional group of learners indicates that these children face extreme school challenges, both on a social and academic aspect. The main themes found in the literature regarding the lived experiences of these students are: bullying, identification issues, and negative self-perceptions. These are discussed further in the following sections.

Bullying

It has been reported by Peterson & Ray (2006) and Rondini & Silva (2022) that gifted students are more likely than peers to be disposed to bullying as 'difference' in a young school age often leads to social isolation rather than embracement. Likewise, Ochi et al. (2020) has suggested that children with disabilities, in particular 'milder' forms of ASD, are more prone to bullying in school (Ronksley-Pavia et al., 2018). Some research (Foley Nicpon et al., 2011; Wood & Estrada-Hernández, 2009) suggests that the paradoxical interaction of giftedness and autism can cause emotional perplexity, particularly with peers and teachers, which may be attributed to the bullying. It is therefore not surprising that both conditions when co-exisiting can serve as a heightened risk factor for maltreatment, harassment and oppression in school (Ronksley-Pavia et al., 2018).

In a study conducted by Ronksley-Pavia et al (2018) on bullying, eight twice-exceptional children aged 9 to 16 years were interviewed regarding their school experiences. As with a number of other studies (Foley Nicpon et al., 2011; Reis & Colbert, 2004; Vespi & Yewchuk, 1992), they found that the lives of twice-exceptional students were littered with negative experiences that take place primarily in school settings with interactions between teachers and peers. In their study, Ronksley-Pavia et al. (2018) reported that all of the twice-exceptional students had been exposed to bullying at some time during their school time. For some students, bullying was pervasive including emotional and physical abuse, social isolation and ostracizing. These findings are not surprising bearing in mind the peculiar behavioral manifestations of twice-exceptional children, particularly those with ASD who have been reported to be bullied due to their stereotypical behaviours, repetition and obsessions with specific subjects (Ashburner et al., 2019). Many of these students struggle with negative emotions such as frustration, depression, low self-esteem and even suicidal thoughts in response to not only bullying in school but also to social challenges, being underchallenged, and the very lack of correct identification (Reis & Colbert, 2004; Foley Nicpon et al., 2011).

Under-identified and under-challenged

Buttriss and Callander (2005) have identified two forms of behavioural challenges associated with gifted learners that can be a contributing factor to the negative experiences of twice-exceptional students. The first type has been discussed in this chapter, referred to as the 'masking effect' and occurs when students' behavioral problems mask their giftedness. This is particularly evident in children with ASD as they may manifest odd behaviors such as repetitive body movements, self-injury, intolerance to sensory stimuli and non-compliance (Freedman, 2008), all of which are challenging for both teachers and peers to comprehend. Buttriss and Callander (2005) argued that such behaviour is exhibited when pupils are under-challenged in their educational setting leading to frustration that may even result in disruption or aggression. It is in these instances they argue in which disability masks giftedness and leads to the under and misidentification of such learners. In fact, many gifted students who display mild symptoms of autism have conveyed their school experience as boring as they are forced to wait for their peers

to 'catch up' (Cross, 2001), this again verifying the need for appropriate intellectual challenges for such students.

The other type of behavioural concern reported by Buttriss and Callander (2005) in twice-exceptional students is the social isolation that occurs as a result of their giftedness. Verbal maltreatment and calling names like 'nerds' is not an uncommon occurrence in different cultures (Little, 2001; Ronksley-Pavia et al., 2019; Gaffney et al., 2019). Diezmann and Watters (2002) affirm that feelings of social isolation in twice-exceptional learners originates from the community's (teachers, peers, parents) perspectives of this exceptional target group. In fact, Peterson et al. (2021) found that some gifted adolescents denied their gifted labels in order to not deviate from the crowd and be deemed different, indicating the need to belong.

Being under-identified and under-challenged, it is not surprising that such students go through their school years with negative experiences. While some of these students purposely 'hide' their giftedness to fit in, others struggle with behavioral challenges that mask their giftedness (Peterson et al., 2021). Such adaptive strategies used by this group of learners to 'fit in', is one added element of challenge to educators, healthcare professionals, and decision makers who are already struggling with the identification of this group of learners (Brown et al., 2005). The unique nature of these students has been perceived as complex in understanding by educators in a number of studies (Powell & Siegle, 2000; Chan, 2000; Jarosewich, et al., 2002; Kettler & Bower, 2017; Reis-Jorge et al., 2021). The masking effect that occurs as a result of the student's autism or giftedness can be attributed to this difficulty faced by educators. Thus, by being under-identified, mis-identified, and under-challenged, it is not uncommon for such students to receive the inappropriate educational provisions.

Disabled or gifted?

The paradoxical phenomenon of twice-exceptional students brings about the question whether this group of learners resembles one group more than the other 'disability' or 'gifted'. A study conducted by Barber and Mueller (2011) aiming to answer this question found that the self-perceptions of 2e students principally resembles those of with a disability with less positive self-

concepts and higher levels of negativity. Orr and Goodman (2010) noted that such students, from a young age, reported feeling stupid, embarrassed and incapable because of their disability. This indicates the need for teachers' understanding of the negative self-conception of this group of students in order to support them in the way fit to their individual case. It would be beneficial to offer socio-emotional support for such students in order to improve their self-conceptions. In line with this, Orr and Goodman (2010) found that 2e students benefited greatly from strong support networks and social relationships in coping with their disability through social outlets, students' groups and mentoring relationships. This is something to be accounted for when implementing provisions for gifted learners with ASD. Perhaps the fostering of social relations and emotional well-being should be deemed a key factor in enhancing the successful inclusion of such students in school (Alkhateeb et al., 2016). Confirming this notion, Garner (2008) has agreed that such students are more likely to succeed in various aspects of life (academically, emotionally and socially) when they receive the appropriate support that enhances their self-esteem. This therefore raises the question of how to best accommodate for such students' needs, a matter that will be discussed in the following section.

2.5 Conclusion

As the research surrounding twice-exceptionality grows, it raises more avenues of investigation. One of the issues that has caused challenges for identification of 2e students is the definition of giftedness that has not been cohesive for researchers to adopt. Educational and psychological literature has proposed a variety of definitions to establish this complex term, nevertheless with no consensus to date. The criteria of identifying gifted students have varied from scholars to approaches and models of giftedness. The psychometric approach defines giftedness through IQ scores and aptitude testing (Terman, 1920), while the multidimensional approach examines various domains and aspects of individual ability that is demonstrated in areas such as arts, sports, leadership, creativity and academic performance (Gardner, 1983; Renzulli, 1978; Gagne, 1992; Sternberg, 2000). The three theories of giftedness adopted in this study - Theory of Multiple Intelligence, Differentiated Model of Giftedness and Talent, Three-Ring Conception of Giftedness - cover the areas of giftedness in which disability can also be manifested. For this reason, the theories can assist in comprehending the paradoxical phenomenon of twice-

exceptional students and how to develop the potential of such learners.

One of the main challenges in identifying gifted learners with ASD is the overlapping characteristics of gifted students and those with a 'milder' form of ASD. Scholars have identified shared features of both learners with ASD and gifted learners, which have made identification process difficult for healthcare and school professionals (Luor et al., 2021; Gelbar et al., 2022). These characteristics include obsession to detail, divergent thinking, uneven development, advanced vocabulary, and excellent memory (Neihart, 2000; Cash, 1999; Huber, 2007). Overlooked, under-identified and misjudged, such students often fall between the cracks of gifted programs and special education provisions - confused, frustrated and discouraged (Gilger, 2013; Silverman, 2003).

Findings of studies conducted in this research area have demonstrated that the school experiences of such students are often littered with negative experiences of bullying, confusion, misidentification, and social segregation (Ronksley-Pavia et al., 2018; Dowling & Carey, 2013; Hartley et al., 2015). To tackle this issue, there have in recent years been significant strides in examining how to best meet the needs of such students and optimize their school experience for efficient learning. Studies like this have found that gifted learners with ASD in schools can benefit from strategies addressing their weaknesses, such as visual aids, clear expectations, differentiated assessment, assignment modification, and the use of concrete language (De Verdier et al., 2018). Correspondingly, scholars have emphasized the importance of developing gifted potential in such students through strategies like encouraging critical thinking, the use of metacognitive strategies, allowing the student to choose their own projects by interest, and using various learning styles in multiple intelligences (Hua, 2002; Nielsen, 2002; Hannah and Shore, 2008; Baum et al., 2001). Moreover, in studies conducted to examine the perspectives of 2e students on their learning experience, (Willard-Holt et al., 2013), such learning strategies have been found efficient by these students.

Although the growing research in this exceptional field of study continues to develop, there are still a vast number of questions regarding the exceptional needs of 2e students, in particular, those with ASD. Questions raised from the existing literature revolve around how to

accommodate for the needs of these students while educating professionals working with this unique population.

CHAPTER 3: EDUCATION IN THE UAE

3.1 Overview

Seeing as the UAE was only formed in 1971, it is undeniably one of the youngest countries in the world; consequently, the notions of SEN and gifted education are understandably new, and still under development (AlGhawi, 2017; Arif & Gaad, 2008). Despite its young age, the UAE is steadily heading towards the adoption of inclusive education for all learners, which is evident from the steps the government has taken throughout the past decade in ensuring inclusion to educate learners with SEN, now locally referred to as 'People of Determination' (POD) in the UAE (Gaad, 2019). Similarly, significant reforms and developments have taken place throughout the past two decades in an attempt to enhance gifted education and the identification of students with great potential within the country (AlGhawi, 2017). Despite such significant efforts put in place to meet the needs of learners identified as gifted or diagnosed with a disability, there is still a substantial gap in meeting the needs of learners identified with both giftedness and disability. Combining these two schools of education (namely, SEN and gifted education) to offer a unique educational approach to 'twice-exceptional learners' is a novel area of research and practice for the UAE's education sector.

Seeing as published research about provisions for twice-exceptional learners in the UAE are available, this chapter will present the current provisions on offer for each element of twice-exceptionality individually (i.e., disability and giftedness). Firstly, in order to provide a detailed description of the current status of twice-exceptional students in the Emirati education system, this chapter offers an overview of the current inclusive education context in the UAE, specifically in regard to students of determination. Secondly, it also explores gifted education, highlighting recent innovations and reforms that have taken place over the past years. Finally, the chapter will discuss the impact of this educational transformation and changes in gifted students with ASD.

3.2 Background, reforms, and laws

The movement towards inclusive education in the UAE took place with the implementation of Federal Law 29/2006 (Ministry of Social Affairs, 2006), which was produced as an outcome of the UAE's ratification of the United Nations Convention on the Rights of Persons with Disabilities, known as the UNCRPD (UNCRPD , 2006). This law came into action many years after an initial law to establish special classrooms in mainstream schools (Gaad, 2019); however, due to decision makers' difficulty in defining 'special needs', advocates and NGOs advocated for a substitution in the term and opted for the term 'people with disabilities' for the purpose of ensuring provisions for any of the disability classifications (ibid). Law 14/2009 was thus issued to substitute the terminology to 'people with disabilities'. Although this terminology did indeed cover a wider classification of students and incorporated learners on the autism spectrum, the term classified the students in this target group as 'disabled', rather than considering the learner as an abled student with explicit needs. This terminology was founded on the individual model of disability, which regards the individual as the core of the problem that can only be 'cured' or treated with the authority of a medical professional (Drum, 2009). Unfortunately, this model marginalizes such students, and hinders their ability to demonstrate special skills and talents (Hadidi & Al Khateeb, 2015), particularly those students who exhibit giftedness and fit the category of a twice-exceptional student.

As a direct response to this marginalisation, initiatives such as 'My Community' in Dubai began gaining popularity, with the sole aim of making Dubai a disability-friendly city (Dubai Executive Council, 2017). This lead to the establishment of the breakthrough term 'the determined ones' or 'People of Determination' (POD), initiated by Prime Minister His Highness Sheikh Mohammed Bin Rashid Al Maktoum in 2017 to highlight abilities rather than disabilities when serving citizens from this part of the population. His Highness Sheikh Mohammed Bin Rashid Al Maktoum explicitly stated that the term was established to acknowledge their substantial efforts in "making achievements and overcoming challenges" (Khaleej Times, 2017). Thereafter, nationwide, every policy document, every legal document and indeed every document used in an

official capacity were subsequently altered and updated to adopt and include this new terminology (Government.ae, 2017).

Despite its empowering connotation, the terminology 'people of determination' has been criticized by some for possessing a rather vague and broad meaning. According to Andrews et al. (2019), the terminology does not account for the explicit needs of this category of individuals, which essentially disregards the individuals' areas of weaknesses and ultimately fails to adequately meet their needs. On the other hand, (Nota et al., 2007; Gaad, 2017), argues that this empowering label sheds light on the determination of people with disabilities, their abilities, and strengths that are often overlooked by society. Thus, they state that the use of this terminology in educational settings may improve the way in which such students are perceived, and they could be served in schools in a more positive manner. This may be particularly true for students with disabilities who also exhibit gifted traits, as the terminology 'the determined ones' is descriptive of the nature of such a twice-exceptional student. This positive shift in mindset can be observed in academic research studies conducted throughout the UAE examining the perceptions of educators and policymakers on autism, disability and twice-exceptionality. These studies (Alborno & Gaad, 2014; Alghazo & Gaad 2004; Gaad, 2004; Arif & Gaad, 2008) demonstrate significantly more positive descriptions of such learners when compared with papers published pre-2017, before the use of the term 'students of determination'. In one recent study for instance (Hammadi, 2017), the descriptions used for participants who identify as students of determination include terms such as 'able', 'talented', and 'good at'. Previously, for decades, students with disabilities were labeled as 'unable' or 'unfit' (Bianco, 2005); however, this negative perspective has been shifting in the UAE as a result of many reforms taking place on a national level (Dukmak et al., 2019; Gaad, 2019; Badr, 2019). This is particularly true with the increasing understanding of autism, including the varying abilities and giftedness that accompany this label (Baldwin et al., 2015).

Established upon the primary objective of creating an inclusive society for People of Determination, the new national policy launched in 2017 (Dubai Inclusive Education Policy Framework, 2017) states that the UAE government will deliver an inclusive education system in

which school curricula are adapted to cater to such students' needs. Additionally, this national policy sheds light on the fundamental requirement for qualified specialists, teachers, ergonomically suitable technologies, and relevant learning tools (Government.ae, 2019). The impact of this social model shift in the UAE is evident in the way that students of determination are now perceived and treated in mainstream schools (Badr, 2019; Usman, 2019; Fakih, 2019). In previous years, when schools operated according to a medical model of disability, teachers were presented with a negative impression of SEN students, which unfairly distorted their perceptions and resulted in them having limited expectations for students' academic performance. Consequently, this group of students were often referred to specialists who would assess and 'treat' students on a one-to-one basis, rather than integrating these students into the classroom; as proposed by some researchers, this behaviour may leads to social segregation (Hehir & Katzman, 2012). However, in recent years, schools in the UAE have started to operate on a human-rights-based approach in line with the UNCRPD's principles and directives, which acknowledge that a student of determination has equal rights to access mainstream school as other students (Hornby, 2015). Subsequently, perceptions have shifted from seeing the student as disabled (from within) to seeing disability as an outcome of external social influences constructed by attitudes, policies, and systems (KHDA, 2019). Furthermore, the Dubai Inclusive Education Policy Framework (2017) aims to set a clear vision for inclusive education and defines disability as "the result of an individual's interaction with society and is not an attribute of the person" (KHDA 2019, p.9). Figure 3.1 demonstrates the UAE federal laws between the years 2006 and 2017 regarding disability rights.

UAE Laws related to Disability Rights

2006	2009	2009/2010	2017
Federal Law 29/2006	**Federal Law 14/2009**	**UNCRPD**	**National Policy for People of Determination**

2006 — Federal Law 29/2006:
- Health
- Employment
- Education

2009 — Federal Law 14/2009:
- Terminology: 'People with Disabilities' to replace 'Special Needs'

2009/2010 — UNCRPD:
- 8 Guiding Principles

2017 — National Policy for People of Determination:
- Health & Rehab
- Education
- Vocational Qualification & Employment
- Accessibility
- Social Protection & Family Empowerment
- Public life, Culture & Sport

Figure 3. 1 A summary of the laws regarding disability rights in the UAE

3.3 Current educational provisions

The UAE is continuously working towards educational reforms and developments (Gaad, 2019). With the emphasis placed on the importance of inclusion, many schools are now abiding by the Ministry of Education and KHDA guidelines by displaying inclusive practices in their educational structures. Such practices accommodate for both Students of Determination (SoD) as well as gifted and talented students, through the development of relevant policies and the implementation of practices that cater for the needs of such students.

The UAE School Inspection Framework (2015-206) defines inclusive education as "the process through which schools develop systems, classrooms, programmes, and activities so that all students are able to learn, develop and participate together. In an inclusive school, the curriculum, physical surroundings, and school community should reflect the views and characteristics of its students. An inclusive school honors diversity and respects all individuals" (p. 13). Despite that 'inclusive education' is often associated with special educational needs and disability (Stegemann & Jaciw, 2018), this definition comprises all learners with diverse abilities

and needs, which also includes high-achievers or gifted learners. However, as there is currently no one educational structure that unites special education with gifted education (to accommodate for twice-exceptional learners), this section of the chapter presents the current educational provisions offered for (a) Students of Determination (special education) and (b) gifted students (gifted education).

3.3.1 Special Education in the UAE

According to the 'Dubai Inclusive Education Policy Framework' (KHDA, 2017), the provisions on offer for SOD ought to be visible and documented. These conditions are directly linked to the regional ranking of the school in the annual quality inspection system, which involves an inclusion audit that provides evidence of implementation for the school's policy (KHDA 2017a). This approach is directly connected to local and national laws, which encourage all schools to provide appropriate support for students of determination; Such examples can be noted in Executive Council Resolution No. (2) of 2017, Regulating Private Schools in the Emirate of Dubai, in particular Article 4 (14), Article 13 (16), Article 13 (17), Article 13 (19), and Article 23 (4). Due to reforms such as these taking place in the UAE, mainstream schools in Dubai are now required to give proof of an effective inclusive education improvement plan, which acknowledges existing gaps in provisions offered for SOD; this includes an action plan with feasible plans for improvements, timeframes, and dedicated resources (Gaad, 2019). Furthermore, many schools in the UAE have now started to modify their modes of communication to reflect a POD-friendly culture, with some schools creating POD-friendly websites, while others adopt a new school vision/mission statement that includes all learners, in particular SOD.

In the UAE, a Student of Determination (SOD) is officially defined as "a student with a long-term physical, mental, intellectual, or sensory. impairment which, in interaction with various barriers, restricts the student's full and effective participation in education on an equal basis with peers of the same age" (KHDA, 2017, p.12). Notably, an autistic student would fit into the

definition of a 'student of determination', however, an autistic student who exhibits giftedness would not. Unfortunately, this could imply that learners who fall within the category of being both autistic and gifted, may not receive appropriate support services that account for both their strengths and areas of needs. Crucially, this means that although the term SOD comes with several positive implications for students with disabilities, it may overlook and indeed disregard those who exhibit traits of giftedness, or indeed other abilities for that matter. Therefore, as is the case in many other countries (Roberts et al., 2015; Mansfield, 2016; Elhoweris et al., 2021), no official policies concerning this group of twice-exceptional learners are available in the UAE.

Having said that, following the new reforms taking place in the country's inclusive education system, the UAE has set forth guidelines for schools to abide by, with the aim of enhancing the provisions offered for Students of Determination. These include: (a) professional development of school staff, (b) staffing and qualifications, (c) admission and accessibility, and (d) alternative curriculum (Gaad, 2019). Each of these areas of development are discussed separately below.

Professional development

In order to achieve an 'outstanding' ranking in the annual school inspection performed by the KHDA, schools in Dubai are required to provide professional development to staff on a continuous basis. Staff should attend both internal and external training on topics pertaining to inclusive education by a competent team, headed by a qualified leader (KHDA 2017a). This mandate is visible in many schools throughout Dubai, who have in recent years placed significant emphasis on assigning specific dates and time during the academic year for professional development in various areas of inclusive education, ranging from understanding and identifying students of determination to setting IEPs, behavior management, and learning support (Gallagher, 2019; Abduelkarem et al., 2019; Alzyoudi et al., 2022). However, one may question if these training sessions alone suffice to improve educational provisions for SOD and students with explicit learning needs, if there is no psychological willingness or motivation of educators to do so.

In relation to this, Hadidi & Alkhateeb (2015) conducted a meta-analysis of research studies in the Arab region (with a specific emphasis on the UAE) from 1990 to 2014 examining teachers' perceptions about inclusive education. Their findings demonstrated that 11 studies (Alghazo, 2002; Alghazo et al., 2003; Alghazo & Gaad, 2004; Almotairi, 2013; Alquraini, 2012; Alshahrani, 2014; Anati, 2012; Bradshaw, 2009; El-Ashry, 2009; Gaad, 2001; Gaad & Khan, 2007) reported negative and unsupportive perceptions of inclusion; while 10 studies (Alanzi, 2012; Van Steen & Wilson, 2020; Fakih , 2019; Dukmak, 2012; ElZein, 2009; Fayez et al., 2011; Khochen & Radford, 2012; Opdal et al., 2001; Somaily et al., 2012; Usman, 2011) found positive views and a genuine willingness from educators; however, 3 studies (Al-Kindi et al., 2012; Hussien & Al- Qaryouti, 2014 reported mixed or neutral perceptions. These findings demonstrate a vast diversity in teachers' attitudes towards inclusion, with almost 50% holding negative perceptions, which then raises the question if school teachers in this region have the will and psychological readiness for inclusion, even if provided with the appropriate training and development.

Staffing and Qualifications

Throughout the past decade, a significant transformation is evident regarding the recruitment structure and qualifications of staff in Dubai schools. Schools are now required to have an 'inclusive education support team' consisting of professionals in the field headed by the 'Inclusion Champion' (also a novel terminology), which refers to the head of the inclusive education department (KHDA, 2017). The Inclusion Champion carries full accountability for the daily provision of inclusive education in the school and leads the inclusion action team who serves Students of Determination (KHDA, 2017). Furthermore, there has been a significant change in the role of the Learning Support Assistant (LSA), who is now expected to demonstrate proof of certification and qualifications, whereas in previous years, this was not required (Gaad, 2004). The inclusion department is a vital component of the inclusive education system in schools, as it is responsible for the effective inclusion of students with different learning needs. According to the KHDA, this department should serve students, who fall into one of 12 sub-

categories of disability, divided under four main categories: (a) students with cognition and learning barriers; (b) students with communication and interaction barriers; (c) students with social, emotional, and mental health barriers; and (d) students with physical, sensory, and medical barriers.

According to the KHDA, another group of students who should be served by the inclusion department are the gifted and talented. Due to the misconceptions educators had about the provisions this group of learners need, the KHDA produced guidelines, which clarify how gifted and talented learners are supposed to be supported by the inclusion department, in addition to regular classroom teachers (KHDA. 2012). They are officially recognised as students with different and unique learning needs, which means they hold the right to differentiated services, just as students with disabilities do. Although roles and responsibilities are adequately defined within the KHDA documents, many educators (both SEN teachers and regular subject teachers) still exhibit uncertainty about their specific roles in providing individualised curricula and support for gifted and talented learners (Younis, 2020). Essentially, educators have improved their comprehension of SEN students and are able to clearly understand their role in providing support and appropriate provision for students who exhibit some of the previously mentioned barriers (communication, socio-emotional, cognitive, and physical/medical) (Fakih, 2019; Dukmak et al., 2019; Youssef, 2019; Takriti et al., 2020). Therefore, students who demonstrate learning barriers of any kind in school are likely to receive support services to overcome their challenges, while gifted students unfortunately remain under-served.

Admission and Accessibility

One of the most admirable and transformative developments evident in the UAE's inclusive education context is access and admission to schools. Unlike in previous years, students of determination now possess equal rights to mainstream education, full access to schools, and every school must clearly state in their policy documents that admittance is not conditional to a

medical diagnosis (Gaad, 2015; Al Obeidli et al., 2018; Alzyoudi et al., 2022 Hemdan, 2022). Additionally, there has been a vast transformation in the initial identification and assessment process for SEN students, including teachers having access to screening checklists that can be used for referral of students to the inclusion department upon need during the admission process (Gaad, 2019).

Yet, one could question the extent to which all educators are sufficiently qualified to conduct such evaluations, even with the tools used to screen for potential learning differences; this applies not only to students who exhibit disabilities but also to the gifted and talented group of learners. Due to the global movement of the inclusion of children with disabilities, schools worldwide have in recent years placed an emphasis on identifying students with learning needs during the actual admission process (Gaad, 2013); however, this has certainly not been the case with gifted and talented students. Returning to the context of the UAE, the admission process in many Dubai schools is based on procedures that aim to identify whether a student's academic performance is in-line with a particular grade level or not. Seeing as learning delays and difficulties can easily be tracked at this stage, students with such challenges are more likely to be classified as a 'student of determination', which entitles them to special education provisions (AlGhawi, 2016); contrarily, unique gifts and special talents are typically not acknowledged during this admission process. Rather, there is a possibility that these gifts and talents may be recognised by educators at some point during the academic year; however, this is not guaranteed, so it is possible that such students remain unidentified throughout the entire school year (AlGhawi, 2016). As a result, gifted and talented students are often under-identified during the school admission process, which may ultimately lead to the inappropriate educational challenges for this group of learners. This is especially true for students who exhibit both traits of giftedness and a learning disability, in which the disability is more striking, causing a masking effect (Montgomery, 2009; Ziegler & Phillipson, 2012; Van_Viersen et al., 2016) and ultimately disqualifying the student for gifted provisions. Hence, it could be argued that there is an essential need to consider the requirement for a further change in the admission process of Dubai schools, in order to implement a more comprehensive assessment in which the student's abilities, challenges and potential gifts or talents are evaluated.

Alternative curriculums

Regarding the matter of curriculum differentiation, Dubai-based schools are now expected to offer Students of Determination an alternative curriculum of study in case they are unable to access the primary curriculum of the school. These curriculums, however, must be officially recognised programmes and include UK's ASDAN (Award Scheme Development and Accreditation Network) or BTEC (Business and Technology Education Council) qualifications (Gaad, 2019). Furthermore, functional skills qualifications or alternative entry-level qualifications are now included as part of the alternative curriculums and should be stated in the student's IEP.

Another noteworthy point is for students on the autism spectrum, as many schools in Dubai have recently adopted the Universal Design for Learning (UDL). UDL promotes the consideration of access and equal opportunities for all students during the planning stages of teaching and learning (Hall et al., 2012; Behling & Tobin, 2018; Tobin, et al., 2018; Gargiulo & Metcalf, 2022). For example, rather than making accommodations after noting learning obstacles (a process known as 'retrofitting'), from the outset, UDL encourages institutes to carefully consider a multitude of accessibility issues, such as allowing all users access to the building using the same door, but with a variety of means of access (Gargiulo & Metcalf, 2022). The UDL approach is becoming progressively more prominent in many UAE schools, and it is evident to see that educational structures are being accommodated to meet the academic and individual needs of students on the autism spectrum (Soto, 2016). Such changes taking place in many of the schools in Dubai can be observed particularly for schools rated as 'Very Good' or 'Outstanding' by the KHDA Inspection. Interestingly, the school inspection report for the academic year 2019-2020, includes areas of strengths and weaknesses for all inspected schools, including recommendations of improvement that focus mainly on the gifted and talented provision). With that said, it should be noted that even though certain schools do accommodate for the general target population of students of determination, little focus has been placed on curriculum adaptations or accommodations for gifted and talented students. Again, this implies that schools

are providing insufficient support for gifted students, and that the twice-exceptional students diagnosed with ASD may indeed receive suitable curriculum adaptations for autism, yet not receive the same level of support for their giftedness. The illustration below (Figure 3.2) demonstrates a summary of the reforms that have taken place in the UAE inclusive education system since 2017 to accommodate for the needs of students of determination.

Professional development	Staffing and qualifications	Admission and Accessibility	Alternative Curriculum
Staff training by qualified team	Inclusion Champion heading team	All SOD have access to school provision regardless of medical diagnosis	Other curriculums for SOD, including ASDAN, BTEC and function skills
	Inclusion action team of specialists	Identification and admission process include teachers	
	LSA must demonstrate qualifications		

Figure 3. 2 A summary of the educational reforms in the UAE for students of determination

3.3.2 Gifted education in the UAE

The notion of 'Gifted Education' in the UAE is a relatively new concept, with its beginning phase starting in the year 2000 up to 2007. Initially, the Department of Special Abilities in the UAE formed a sector for gifted programs, including national competitions, conferences, resource rooms and awareness raising campaigns (AlGhawi, 2017). Thereafter, the country saw an increasing emphasis on gifted education, hence, further developments occurred between 2008 to 2015, which included vast educational reforms. Starting in 2008, the "School for All" initiative was launched with a primary aim of enhancing gifted programs and provisions in schools.

Renzulli's (1977) School-Wide Enrichment Model (SEM) was adopted, equipping schools with a range of necessary resources, and providing meaningful professional development training for teachers (Younis, 2018; Elhoweris et al., 2022). In the subsequent year (2009), schools introduced an 'enrichment hour' with the purpose of implementing Renzulli's SEM model for the enhancement of gifted programs. Next, in 2010, general rules for special education programs were implemented to regulate services offered for highly abled students; and finally, in 2014, an initiative from the Ministerial Cabinet Retreat set up comprehensive systems to identify and nurture the abilities of gifted students. Notably, a further initiative that took place in 2015 was named 'the year of innovation', which aimed to position the UAE as the capital of creativity and innovation within the MENA region through innovation in various fields like robotics and laboratories using Science, Technology, Engineering and Math (UAE Government, 2015; Moonesar, 2015). Figure 3.3 demonstrates a summary of the initiatives for developing gifted student potential between the years 2008-2014.
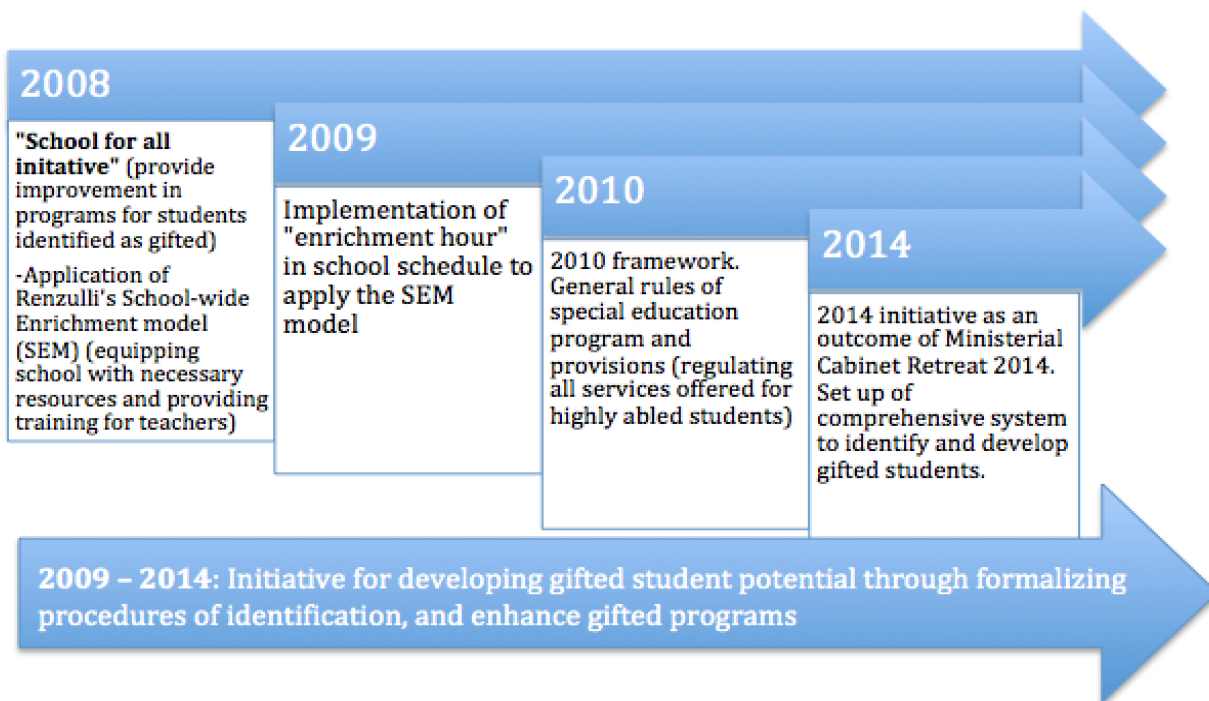
Figure 3. 3 A summary of the initiatives in the UAE to develop gifted potential

Current reforms in gifted education: the UAE school inspection framework for gifted and talented

As part of the KHDA's improved 'school inspection framework', the UAE has established a set of standards and clear guidelines regarding the identification of gifted students, as well as guidelines on the differentiation between gifted and talented students. This framework adopts Gagne's Differentiation Model of Giftedness and Talent (2013) as aligned with international best practices. The framework defines a gifted student as "*a student who is in possession of untrained and spontaneously-expressed exceptional natural ability in one or more domains of human ability'* (Ministry of Education 2019, p. 119*); whereas a talented student is referred to as 'a student who has been able to transform their 'giftedness' into exceptional performance' (*Ministry of Education 2019, p. 119). Moreover, the UAE's school inspection framework distinguishes between a 'gifted student' and a 'highly able student', stating that gifted students have the potential to be highly able, whereas highly-able students may not necessarily demonstrate giftedness. Table 3.1 demonstrates the differences in descriptions between a highly able and gifted student, according to the KHDA definitions (retrieved from UAE School Inspection Framework 2015-2016), which are followed in Dubai schools.

Table 3. 1 The differences in descriptions between a highly able and gifted student according to the KDHA

Area of development	Highly able	Gifted
Questions and Answers	Knows the answer	Asks the questions
Achieving	Works hard to achieve	Knows without working hard
Enjoyment in Learning	Enjoys school	Enjoys self-directed learning
Imagination	Has fine imagination	Applies imagination to experiment

The definitions and descriptions of gifted, talented, and highly able students set out by the KHDA may assist educators to better comprehend the different traits of such students. However, although the literature (Hussein & Taha, 2013) generally agrees with the definitions presented

for all three categories of students, these definitions do not account for gifted/talented students who have learning disabilities, in particular ASD. Furthermore, considering the cognitive, socio-emotional and communication challenges that autistic learners are often faced with, the definitions in Table 3.1 are not actually applicable to learners with ASD. For instance, the KHDA suggests an autistic student may exhibit untrained, spontaneously expressed natural ability in one or more domains of human ability, while struggling to ask questions in the classroom. Although this may be accurate, it should be noted that an autistic student may hold an extensive amount of knowledge but does not reveal this in a social context (Duncan & Bishop, 2015), and as a direct result of their social communication challenges, an autistic student may not reveal their gifted traits, which could disqualify them from a 'gifted label', and ultimately disqualify them from gifted provisions.

Having said that, the school inspection framework does acknowledge the complexity of identifying gifted students due to several factors including language and learning difficulties, gender, location and mismatching between a student's level and the level of a curriculum. Thus, it proposes a range of methods to aid in the identification of such students such as observations, gifted screening checklists, parent and student interviews as well as the application of standardized assessments (KHDA, 2017). Other than the guidelines set out to identify gifted students, the UAE school inspection framework also proposes numerous strategies for establishing personalized education programmes that are designed and tailored specifically for the needs of gifted students. These are summarised in Table 3.2.

Table 3. 2 Setting personalised education programmes for gifted students in the UAE

Differentiation	A differentiated curriculum that matches the level and ability of the student
Pace	Providing appropriate challenges in the pace of learning to the student as gifted may learn at a faster pace
Assessment	On-going assessments to match curriculum delivery. Pre-assessments to set challenging learning from the beginning
Enrichment	Provisions for gifted students such as acceleration in the mainstream classroom
Level of work	The curriculum needs to be concept-based and encourage abstract thinking so that abilities are challenged.
Groupings	Offer flexible work opportunities in groups of other gifted students or individually.

As highlighted earlier, the UAE does not yet offer a separate, dedicated framework for gifted students with ASD or twice-exceptional students in general. Despite the evident efforts made to facilitate the nurturing of gifted students within the country, educational frameworks are yet to be developed to the degree in which they take into account gifted learners with ASD and their unique nature. Moreover, although the guidelines produced by the KHDA for the provisions of

gifted learners (see Table 3.2) are thorough and useful, they are not easily applied to students on the autism spectrum. For example, a gifted learner may enjoy collaborating with peers by working in groups, whereas a gifted learner with ASD may find this aversive due to her social challenges (Duncan & Bishop, 2015; Anati, 2012). Similarly, a gifted student may benefit from concept-based curricula, however, a gifted learner with ASD may find this incredibly challenging due to her struggle comprehending abstract concepts (Baldwin et al., 2015; Duncan & Bishop, 2015). In summary, even though the educational framework for gifted students in Dubai adopts research-based practices that are effective in gifted education, there is clearly an evident need for further developments to be made regarding the education of twice-exceptional students.

Moving towards a social model of disability

The policy changes and empowerment initiatives discussed above, demonstrate the UAE's objective of becoming a disability-friendly country; moving towards a social model of disability which views a 'disabling society' as the core source of disability. As Priestley (2001) noted, the social model of disability was developed as an initiative to shift negative stereotypes of People with Disabilities (PWD) to a more empowering perception by removing traditional obstacles within a society and the negative attitudes of its people. In the context of the UAE, this can be observed by the policy shift regarding this target group that aims to empower and shed a light on their capabilities.

From the year 2000 to the year 2013, studies examining educators and policymakers' perspectives on disability in the UAE clearly demonstrate a stigma and marginalization of children with disabilities (Alghazo & Gaad 2004; Arif & Gaad, 2008; Bradshaw et al., 2004; Gaad, 2004; Gaad, 2011; Gaad & Khan, 2007; Alborno, 2013). One example of this can be observed in a study conducted by Arif and Gaad (2008), in which the language used by participants demonstrated insensitivity towards students of determination and a range of demeaning terminologies. Such words describing children with disabilities included 'retarded' or 'Mongols' and were used commonly in students' official school files and reports. The tragedy

model of disability (similar to the medical model of disability) was also apparent in UAE media, whereby the focus was predominantly about the challenges these individuals face, with tragic terminologies used such as 'disadvantaged', 'suffering' and 'problem' (Gulf News, 2008; French and Swain, 2004); effectively defining disability from a charity-based approach rather than a human rights-based one (Alshamsi, 2010; Gaad, 2011). Nevertheless, with continuous efforts, reforms and awareness campaigns taking place throughout the past two decades by the Emirati government to shed a positive light on disability, this medical perspective of disability has progressively transformed in many aspects.

Moreover, from a legal standpoint, national policies and laws clearly articulate the rights of individuals with disabilities in several sectors. Federal Law (29/2006) for instance governs the rights of individuals with disabilities regarding education, health, and employment. Articles 12 to 15 describe the educational rights of children with disabilities and guarantee equal opportunities in all educational institutions with individualised modifications and adaptations for students, according to their specific learning needs. Indeed, with an underlying implication towards a social perception of disability, article 12 specifically states that "disabilities do not constitute intrinsically an obstacle hindering from applying to enrol, join or enter any educational institution whether governmental or private" (MSA 2006, p. 7). In other words, this law recognizes social and environmental barriers that may act as obstacles for students with disabilities and aims to change this in order to facilitate meaningful and effective participation of this group of students.

Again, as introduced earlier, part of the move towards a social model of disability within the UAE was the implementation of the 'School for All' initiative, which was launched and adopted by the MoE as a conscious and significant step towards the social integration of students with disabilities (Anati & Ain, 2012; Bock, 2015). It supported the gradual transition of this group of learners from segregated rehabilitation centres to mainstream schools, in which they are now offered an equal opportunity for education to meet their social, emotional, and vocational needs (MOE, 2010). Essentially, this movement towards inclusive education in the UAE is based

predominantly on the removal of barriers to participation for students of determination in the context of mainstream schools.

3.4 Conclusion

Despite significant reforms and multiple efforts by the UAE government to provide an inclusive educational environment for all students, there is still a lack of adequate implementation measures in both public and private schools of relevant laws, policies, and initiatives (Alkhateeb et al., 2016). Regulations established by the UAE government regarding the education of students of determination contain considerations pertaining to behavioural and academic issues; however, they do not specify roles or responsibilities, nor the general implementation of curriculum modifications or adaptations for this group of learners (MOE, 2010). Academic research studies which have examined the provisions offered for students of determination in UAE mainstream schools have generally agreed that the most common practice is the use of 'para-curriculums'. These para-curriculums are grounded on the exclusion of challenging lessons from the curriculum, and an overall reduction in the required number of chapters that a student should study (Arif and Gaad, 2008; Gaad, 2019), consequently leaving little space for students to be challenged and grow. Accordingly, Ogunniyi (2007) and Ogunniyi & Hewson (2008). have argued the need for the development of new curriculum systems that genuinely meet the comprehensive needs of students of determination, while also challenging and pushing the student forward. This may assist in fulfilling the vision of Dubai to achieve a first-rate education system that ensures the effective inclusion of all learners.

In conclusion, the UAE is undoubtedly moving towards a social model of disability with legal reforms, campaigns and initiatives aiming to transform perceptions about disabilities in the minds of educators, parents, relevant stakeholders, and even students (Gaad, 2019; United Arab Emirates Government, 2019b; Gaad, 2017). Although the current system is arguably still a 'work in progress', a noticeable shift has taken place within the country over the years in many sectors, and specifically the education sector. With the aim of the UAE to create an inclusive community, there are still areas for improvement to be developed regarding the overlooked and under-studied

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groups of students. These challenges that are still faced by this category of overlooked students and their educators, which is a result of the gap between 'special education' and 'gifted education' are what this study explores.

CHAPTER 4: METHODOLOGY

4.1 Overview

This chapter presents the methodologies applied to answer the research questions:

1. What are the provisions on offer for gifted students with ASD in Dubai mainstream private primary schools?
2. How do gifted learners with ASD perceive the current offered provision in school?
3. What is recommended by gifted learners with ASD in terms of provisions offered in school?

The aim of this study was to examine the provisions on offer for gifted students with ASD in Dubai mainstream schools, and to unveil the lived experiences of this group of learners. Insufficient research has been conducted exploring student voices, and especially twice-exceptional students diagnosed with ASD. Hence, the main research objectives of this study were to expand the research knowledge of the stories and lived experiences of this unique target population by exploring how they perceive the provisions in schools, in addition to their recommendations for enhancements.

The chapter is divided into sections explaining the methodology and phases of the research. Firstly, the research approach is presented, explaining the research paradigm adopted and the foundation of the research design. Secondly, the research methods including the site and context of the study, population and sampling are described. Thirdly, instrumentation and data collection are presented, discussing the tools utilised to obtain data, and the methods of data collection. The tools and instruments used in this study are presented in two separate subsequent sections, explaining the nature of the tools and rationale behind using them. In the fourth section, the researcher presents the data analysis method, and describes the phases and process in which the data analysis took place. Following this, a section on the pilot study is presented, clarifying the process of the pilot study and modifications that were adopted accordingly. This chapter ends

with a section on ethical considerations, a section on limitations and challenges, and finally a conclusion of the chapter.

4.2 Research approach and design

To answer the research questions of this study, a pragmatic research paradigm was followed using a qualitative approach that incorporates a quantitative tool (a survey) to garner data which informs the qualitative study. The pragmatic research paradigm is a problem-solving oriented approach that allows the researcher to explore the research problem with an open mind rather than aiming to find one 'absolute' truth; it emerged as an approach for practical-minded researchers to explore possible solutions to research problems (Creswell and Plano Clark, 2011; Maxcy, 2003; Rorty, 2000). Unlike the positivist paradigm and constructivism, this approach is flexible in its nature, permitting researchers to explore the topic under investigation with an open mind, adopting a combination of different methodological approaches in research, taking into account that research results cannot be explained by one single reality, but rather multiple realities (Campbell, 2002). As the pragmatic paradigm includes numerous methods, ideas and principals that may offer a solution to a given research problem (Kaushik & Walsh, 2019), it was deemed the most suitable paradigm for this study. For the purpose of exploring provisions offered for gifted students with ASD, this problem-centred methodology was deemed appropriate for collecting data that accurately represents the current status of what is on offer for this target group and how this is perceived by students themselves.

In order to investigate the provisions on offer for gifted students with ASD in Dubai mainstream schools, a survey and semi-structured interviews were conducted with a sample of both educators and students. To capture the student voice and explore their perceptions about the educational provisions, students were asked a set of questions through a semi-structured interview held through online video calls. According to Creswell (2015), a qualitative research approach is advantageous for acquiring a thorough and deep understanding of a particular target group or population in a flexible way. It is therefore considered to be one the most suitable research approaches for investigating the voices and lived experience of this unique target population in a

flexible manner. However, it has also been noted by various researchers (Patton, 2008; Morse, 1993; Smith, 2015), that the outcomes of a qualitative research approach are somewhat limited due to bias and subjective feedback. For this reason a survey was conducted in addition to the semi-structured interviews for educators, in order to obtain anonymous, non-biased responses (Rea & Parker, 2014). To tackle any potential issues on bias and subjective feedback, four constructs of research trustworthiness proposed by Lincoln and Guba (1985) were followed, and these are discussed further later in the chapter.

Arguably, alone, neither one of these research approaches (semi-structured interviews and surveys) are sufficient to answer the research questions of this study adequately. Therefore, it was decided to adopt both of them together, to present a more comprehensive representation of the topic studied (Bryman, 2006). The purpose of adopting both approaches together is primarily to compensate for the drawbacks of each approach alone (Fraenkel and Wallen, 2009; Creswell, 2012) and to enhance triangulation. In qualitative research, triangulation enables validation of data through cross verification from more than two sources; it tests the consistency of findings obtained through a variety of tools and increases the chance to assess some of the threats or multiple causes influencing results (Carter, 2014).

The research was conducted through three key phases. Firstly, surveys were conducted and distributed to school staff to explore the provisions on offer for gifted students with ASD. This stage also involved the document analysis of the policy and education framework followed by schools in Dubai, UAE. During the second stage of this research process, the researcher conducted semi-structured interviews with educators who teach gifted pupils with autism, and also educators who do not. The purpose of these interviews was to investigate how this target group of students are being supported and educated in the private education system. Finally, the third stage of this research aimed to answer the final two research questions, which explore the perceptions and lived experiences of gifted students with ASD in Dubai private schools. Initally it was planned for this to be conducted through the students creating their own personal, online avatar, which would have been used to represent themselves. Students would then have beeen

asked questions, similar to semi-structured interviews, through another online character which they would have answered through their own avatar. However as a result of the restrictions in meeting with students face-to-face, this approach was amended to the use of virtual video calls with students. The questions aimed to investigate their own perception of the provisions offered in school and seek recommendations by students themselves on the type of support they would wish to receive. Examples of such questions are "Tell me about the type of support to help you that you receive in school. Is it different from your classmates or the same? Tell me more." and "What would you recommend to teachers and others in your school to overcome the challenges (if any) that you face in school?" The main methodological approaches answering the research questions of this study are demonstrated in Table 4.1.

Table 4. 1 Methodological approaches answering the research questions

Research Question	Methodology	Tool/instrument	Population	Participants
RQ1) What are the provisions on offer for gifted students with ASD in Dubai mainstream private primary schools?	Qualitative methodology Document analysis (triangulation)	Semi structured interview (online) Survey (online) 2 KHDA reports (for each school)	6 participants	-Educators, -Inclusion department, -School leaders
RQ2) How do gifted learners with ASD perceive the current offered provision in school?	Qualitative methodology	Semi structured interview (online)	4 participants	Gifted student with ASD
RQ3) What is recommended by gifted learners with ASD in terms of provisions offered in school.	Qualitative methodology	Semi structured interview (online)	4 participants	Gifted student with ASD

4.3 Research Methods

This section presents the research methods and procedures used to garner data for this study. It describes the research context, participant data, instrumentation, data collection, data analysis and details on the pilot study.

4.3.1 Site/context

Arguably, one of the key factors of success in developing solid research is to establish the research context (Lim, 2012). The research context can be described as the conditions that represent the research problem or issue under investigation. Through the correct identification of the research context, the researcher is able to (1) select the appropriate research approach to answer research questions, (2) accomplish the research objectives, and (3) establish the site in which the research will be conducted (Fraenkel & Wallen, 2009). Thus, this section will present information on the context and site in which the research took place.

According to the Knowledge and Human Development Authority (KHDA, 2018), the emirate of Dubai is unique in the sense that it provides 17 different curricula across the country, the most popular being the UK curriculum (79 out of 209 schools), US curriculum (40 out of 209 schools) and the Indian curriculum (40 out of 209 schools). Due to this large number of curricula available in the emirate of Dubai, the researcher decided to select only schools that offer UK and US curriculums as part of this study. These curriculums were selected for several reasons; firstly, most of the schools rated as 'very good' or 'outstanding' by the KHDA follow UK and US curriculums (KHDA, 2017a). Moreover, such schools would typically follow educational 'best practices' that consider the requirements of students with different learning abilities and needs. Receiving a KHDA rating of 'very good' or 'outstanding' signifies that the school should have an efficient inclusion department and continuous professional development sessions for educators. Thus, by choosing these types of schools, the researcher aimed to select a sample that would represent the schools with the 'best practices' for gifted learners with ASD. The second reason is the broad range of expatriate students and educators that are enrolled in the schools offering US and UK curriculums. As per the inspection report released by the KHDA (2017a), these curriculums have internationally accredited education systems that encompass the largest

variety and percentage of students and educators of different nationalities, religions, and backgrounds. This demographic composition greatly represents the emirate of Dubai as the UAE is one of the most multi-cultural and multi-national countries worldwide, home to over 200 nationalities (Akinci, 2020; Siemund et al., 2021). Thus, the researcher deemed this selection of schools as appropriate to represent the nation it aims to represent. The final reason for selecting US and UK curriculums is simply for the convenience of participants speaking the English language; by interviewing participants in English, the researcher has ensured that transcripts occur without potential errors that come along with translations or interpretation of meanings. This is an important consideration because some authors (Van Nes et al., 2010) have argued that often participants' voices get 'lost in translation' when transcribing from another language.

Other selection criteria were based upon the need for schools to become inclusive. This means they provide inclusive education to students of determination and gifted students. To recruit schools like these, the KHDA school inspection report was analysed for the academic years 2017/18 and 2018/2019. Then, with the use of convenience sampling, a list of eligible schools was shortlisted for this research study, with the aim of identifying a representative sample of best practices and accurate results (Nilholm, 2021).

It is important to note that certain parts of this study are based on legislations/terminologies set out by the UAE, while others are set out by Dubai as a distinct emirate that differs from the rest of the emirates in the country. Throughout this study, the researcher refers to the students under investigation as 'Students of Determination'. This is a terminology established by the UAE government, and was therefore adopted by the researcher when recruiting such students and their educators. To select the schools for this study, the researcher referred to the KHDA (as has been explained previously) which is the educational quality assurance and regulatory authority exclusive to the emirate of Dubai. As the KHDA is responsible for evaluation and accreditation of private educational institutions in Dubai, this study focused only on private schools and excluded government schools.

4.3.2 Population, Sampling, and Participant Selection

4.3.2.1 Population

According to Creswell (2015), a population is a group of individuals sharing common features that the research aims to examine. As this research aimed to (a) investigate the provisions on offer for gifted learners with ASD in Dubai mainstream schools and (b) explore the lived experiences of these students, the researcher recruited educators, school leaders and gifted students with ASD. The role of educators and school leaders are not only important for garnering data to answer the research questions of this study, but moreover to examine the awareness and perception of this target population on the topic under investigation. School leaders and educators have a significant impact on the education and formation of educational structures for gifted learners with ASD, and therefore their participation in this study is essential. Despite that this study examines the provisions on offer for gifted learners with ASD in school, it is important to highlight that not all participants are teaching gifted students with ASD. Further details on the participants are presented in the following section.

4.3.2.2 Sampling and participant selection

The sample participants of this study are constituted of two main, overarching groups, which are divided into two sub-groups as per Figure 4.1.
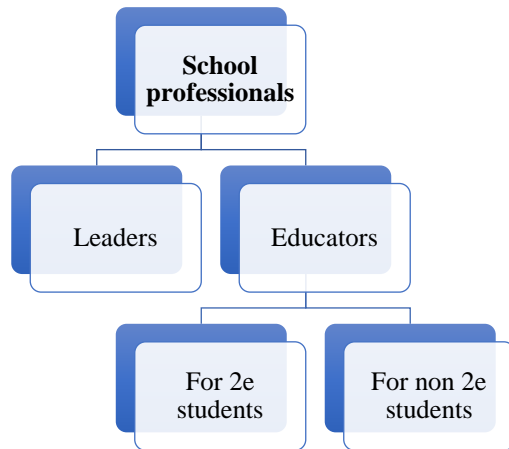
Group 1   **Group 2**
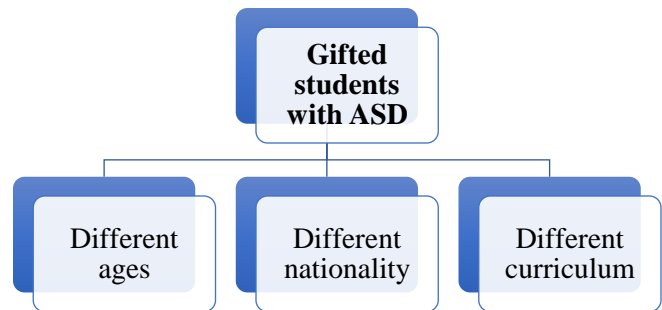
Figure 4. 1 Participant groups of this study

Group 1 consists of school leaders, which means that they hold positions such as leader of provision for students of determination, inclusion champion, or governing board; while educators consist of those teaching twice-exceptional students and non-twice exceptional students, whether that be within the context of a classroom or the inclusion department. To explore the provisions on offer for gifted students with ASD (RQ 1), it was deemed appropriate to recruit both educators teaching this special group of students and educators who do not teach such students. Essentially, the researcher aimed to explore such provisions from different viewpoints by including school leaders, counsellors, social workers, and inclusion support teachers, rather than only addressing regular classroom and subject teachers. Arguably, it is important to consider the role of all these stakeholders the education for this group of exceptional learners, as their different positions may influence or contribute to the educational systems of these students and their school experiences or overall well-being.

Group 1: Educators (semi-structured interviews)

Participants were chosen for this study using a purposeful selection that focused on educators or school professionals involved in the education of gifted students with ASD. Although participants do not necessarily share common characteristics, they share in common their influence on the education of this group of learners. Thomas (2010) argues that this is a common participant selection strategy that can meet research objectives by seeking rich information in cases and examining them in great depth. Notably, participants who took part in the semi-structured interviews differed from those who participated in the survey; and no specific criteria was set for educators in terms of age, nationality, career experience, gender or job title. The reason for this was to increase the opportunities for a larger sampling pool and to answer RQ1 with a broad lens, considering different professional roles that may impact the education of these twice exceptional learners. Initially, the researcher aimed to recruit an equal sample of educators who teach such gifted students with ASD and those who do not, to compare the outcomes of each group and the differences in both the awareness of educators and the provisions offered for this group of students. Similarly, the researcher intended to recruit an equal number of school leaders to educators (i.e., subject teachers, homeroom teachers and special education teachers). However, due to unanticipated challenges (discussed further in chapter 6), the actual number of participants recruited to take part in this study was less than the target amount, with an unequal number in participants' job roles. The final number of participants who took part in the semi-structured interviews from group 1 was six (practicing) educators/leaders. Four of these participants worked directly with a student identified as twice-exceptional and gifted with ASD, while the other two participants had encountered such students in their teaching background but were unsure about the actual diagnosis of their students. The participants worked in schools that delivered either a British or American curriculum. Four participants were female, two were males, all ranging between the ages of 32-52. Three participants worked within the inclusion department, as SEN teachers and Head of Inclusion Department. The other three participants worked as subject teachers, specifically an art teacher, English teacher, and math teacher. No participants were excluded for any reason, and all participated voluntarily, gaving informed consent in line with the ethical standards of the University of Glasgow. Table 4.2 displays the

demographics and characteristics of the six educators who participated in the semi-structured interview.

Table 4. 2 Participant demographics

School	Participant	Gender	Nationality	Job title	Age	Years teaching in Dubai	Curriculum
School A	E5	Female	British	Art teacher	35	7	British
School B	E1	Female	Egyptian	SEN teacher	38	10	US
School C	E4	Female	Indian	Head of inclusion	52	2	British
School D	E2	Female	Emirati	Math teacher	35	8	British
School E	E3	Male	Filipino	SEN teacher	32	9	US
School F	E6	Male	Jordanian	English teacher	44	5	US

Group 1: Educators (survey)

For the survey, 21 educators of different backgrounds and job roles participated. Table 4.3 displays the job roles of the participants, while Table 4.4 displays the number of years of experience participants have working in the emirate of Dubai as an educator. Participants nationalities varied between Indian, British, Palestinian, Nigerian, and American. Two participants worked in the same school, while the rest of participants schools all differed.

Table 4. 3 Job roles of participants (retrieved from survey)

Job title	Number of participants
Psychologist/Social worker/Counselor	3

Job title	Number of participants
Senior management/Leader	5
Gifted Education Specialist	1
Inclusion Support teacher (SpEd)	6
Regular classroom/subject teacher	4
Assistant	2

Table 4. 4 Number of years of experience in Dubai as an educator

Job title	Number of participants
1 year or less	1
1-4 years	7
5-10 years	6
More than 10 years	7

Group 2: Students

Group 2 consisted of gifted students with ASD, who exhibited different domains of giftedness, such as mathematical, artistic, linguistic, and sports. To recruit such participants, the researcher used purposeful sampling. According to Patton (2002), this is a technique commonly used in qualitative research for the recognition and selection of information-rich participants for the most effective use of limited resources. In purposeful sampling, identifying, and selecting groups of individuals that are particularly informed about or experienced with a phenomenon of interest is particularly important (Creswell and Plano Clark, 2011). Based on the literature in this field addressing the under-identified number of twice-exceptional students in schools, the researcher had already anticipated a limited number of participants. The initial planned number of student participants was five to six while the final number of recruited participants was four. The rationale for selecting this small number of students is: (a) the challenges in acquiring and recruiting such a unique target population (taking into consideration the under-identified number of twice-exceptional students in the country); (b) the purpose of having an *in-depth view* of the

lived experiences of such students rather than a big number (quantity with shallow data), and (c) the difficulty that may arise from communication obstacles with gifted students with ASD (Neihart, 2000).

In fact, this small sample size is justified not only by the methodological challenges faced by the researcher but also by the low number of such students who have been accurately identified in schools. Additionally, some parents who were approached by the researcher declined to allow their children to participate in this study. Nevertheless, the researcher aimed to recruit a diversified sample of the students who differ in age, gender, nationality, and area of giftedness. As mentioned previously, the UAE is one of the most multinational countries in the world (Akinci, 2020; Siemund et al., 2021), which is composed of inhabitants from various nationalities, ethnicities, and religions. Hence, it was deemed appropriate to diversify the sample population of students to accurately represent Emirati education and international expatriates' education. Two of the students who participated were of Emirati nationality, one student was American, and one student was Kuwaiti. Regarding participants' gender, the researcher aimed to recruit an equal number of boys to girls in this study, however this was not possible, and the outcome of participants taking part in this research was three boys and one girl. One possible explanation to this could be the 4:1 male to female ratio in individuals with ASD - one of the most consistent findings in the research on autism spectrum disorder (Anello et al., 2009; Loomes et al., 2017; Nag et al., 2018).

Essentially, the selection criteria of the students in this study were:

- Both genders
- Ages 7-15 years
- Must have an official diagnosis of ASD
- Identified as gifted by several parties (e.g., by educators, caregivers, peers etc.)
- Excel in one or more area

For the purpose of this study, the definition of a gifted student is adopted from Gagne's 'Differentiation Model of Giftedness and Talent' (KHDA, 2019). As quoted in the KHDA policy for gifted and talented students (2019) the term giftedness refers to "*a student who is in possession of untrained and spontaneously-expressed exceptional natural ability in one or more domain of human ability. These domains will include intellectual, creative, social, physical abilities. In the case of a gifted student, whilst exceptional potential will be present, they may actually under achieve.*" (p.16).

According to some experts (Schroth & Helfer, 2020; Sternberg, 2020), gifted students are considered to be students of high ability who are judged as showing outstanding skill in one or more of the following:

- Superior Cognitive Ability (e.g., memory, comprehension). This area includes academic performance,
- Visual ability (e.g., photography, painting, drawing etc.),
- Physical ability (sports etc.),
- Creative Thinking Ability,
- Arts ability (music, dance, drama).

In this study, student participants were identified by parents and/or educators through:

- Referral by teachers of students with explicit higher ability,
- Teacher Observation/Checklists/Survey,
- Internal assessment results (School based summative and formative assessments),
- Standardized assessments of cognitive development and ability that can only be administrated by Educational Psychologists,
- School assessment data using SIMS and CAT 4,
- Parent nomination with supporting documentation.

All learners who were recruited for this study fit the criteria mentioned, varying between mathematical giftedness, musical, superior cognitive giftedness and academic (Gardner, 1983). Also, all students commonly shared a diagnosis of ASD. Table 4.5 displays the characteristics and areas of giftedness for the student participants of this research.

Table 4. 5 Student characteristics

Student	Giftedness domain	Gender	Age	Nationality	Curriculum
S1	-Academic giftedness (math, science, language), - Memory, - Creative thinking	Male	15	Kuwaiti	American
S2	-Math, -Music	Male	11	Emirati	British
S3	-Superior cognitive ability (comprehension and language), - Creative thinking ability	Female	14	American	American
S4	Academic giftedness	Male	14	Emirati	American

4.4 Instrumentation and Data Collection

Based upon the adopted research design, the researcher used various data collection tools and instruments to answer each research question. For a researcher to answer any research question, Creswell (2015) argues that the data collection process should be implemented in a systematic manner. Hence, the development or selection of data collection instruments is essential to ensure the integrity of the research (Walliman, 2016). In this study, the researcher collected data from both primary and secondary sources. Primary data refers to the information that was collected on a direct basis by the researcher using a variety of protocols and instruments with the target population (Walliman, 2016). For this study, semi-structured interviews and surveys were adopted as a primary source of data, for all research questions. For the benefit of triangulation, the researcher used a variety of instruments to answer RQ1, which was exploring the provisions on offer for gifted students with ASD. The first instrument was the semi-structured interview with educators, the second instrument was the semi-structured interview with students, and the third one was the survey for educators. For the two other research questions, one separate instrument was used for each question (i.e., a semi-structured interview with students).

In contrast to primary data, secondary data refers to data that has previously been collected by other academics and made available to future researchers (Ghauri & Goraung, 2010). For this study, the researcher used document analysis to answer the research questions. This consisted of previously collected data from the literature review articles in addition to documents related to the educational structures of Dubai and/or the UAE. These included school inspection reports and educational frameworks from the KHDA, Ministry of Education and Dubai School Inspection Bureau framework. Such publications were used for the purpose of an in-depth understanding of the background information on the topic investigated (in a specific context in Dubai). Furthermore, it added valuable empirical data to support the triangulated research (Flick et al., 2019). Table 4.6 presents a summary of the research approach, instruments, and participant sampling.

Table 4. 6 Research questions method

Research Question	Approach	Tool/instrument	Participant sample
RQ1) What are the provisions on offer for gifted students with ASD in Dubai mainstream private primary schools?	Qualitative	Survey; Semi-structured interviews; Document Analysis: KHDA reports, MoE publications.	Subject teachers SEN teachers School leaders Gifted students with ASD
RQ2) How do gifted learners with ASD perceive the current offered provision in school?	Qualitative	Semi-structured interviews	Gifted student with ASD
RQ3) What is recommended by gifted learners with ASD in terms of provisions offered in school?	Qualitative	Semi-structured interviews	Gifted student with ASD

4.4.1 Interviews

Semi-structured Interviews

Using semi-structured interviews along with surveys was deemed the most suitable approach to answer all research questions as it allows the researcher to explore the provisions offered and students perspectives in a detailed, exploratory manner, while also balancing this out with objective data collection (Kallio et al., 2016). Semi-structured interviews were used for both groups of participants, educators and students, to answer the three different research questions.

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RQ1 was answered through the educators' and students' interviews, while RQ2 and RQ3 were answered through student interviews only. Both groups of participants had a different set of questions constructed of both structured and unstructured questions with relevant probes. Following this protocol enables participants to describe concepts, events, and emotions in their own words, thus allowing the researcher to delve deeply into participants' lived experiences and sensitive issues (Creswell, 2015). Moreover, the use of probes can expand the scope of participant responses, which can aid in a deeper understanding and clarification of participant answers (Newcomer et al., 2015). However, despite the benefits of this method, a significant drawback of using semi-structured interviews is the risk of subjective interpretation by the interviewer; hence, Walliman (2016) argues that such an approach requires the interviewer to possess technical, emotional, and practical skills. Another important consideration that the interviewer ought to be aware of is the potential of writing or asking leading questions which in turn may bias the interview (DeJonckheere & Vaughn, 2019; Aguinis & Solarino, 2019). With this understanding, the researcher managed such potential bias by following the trustworthiness criteria proposed by Lincoln and Guba (1985) for trustworthy research, which is discussed further in section 4.5.

Educators and leaders' interviews

Seeing as there are no available instruments for exploring the provisions on offer for gifted students with ASD in a school context, the questions of the semi-structured interviews were formulated by the researcher based on the existing literature. In this sense, questions were formed based on the context of the study and in relevance to the KHDA framework (2018) of Dubai. Although questions were designed based on relevant literature, the researcher aimed to ensure flexibility while conducting interviews to acquire knowledge on the field of each participant and professional being interviewed, in an effort to serve the purpose of the study (Van Hoeven, 2015). Initially, the researcher had planned to interview participants who hold different positions in school, who consist of two main categories: school leaders and educators. For the school leaders, this included the Head of the Inclusion Department, now entitled 'Inclusion Champion' (KHDA, 2019), leader of provisions for Students of Determination, and the school principal. However, due to numerous unanticipated obstacles and challenges,the researcher was

only able to recruit and interview one school leader, namely the Head of Inclusion in one of the schools.

As for educators, SEN teachers were interviewed along with subject teachers. The semi-structured interviews were conducted with educators who are teaching or have taught gifted learners with ASD as well as those who have not. Interview questions differed slightly in the two categories of participants for those who are teaching or have taught this group of students from those who have not. The main differences in the questions revolved around the subjective experiences of educators in teaching this exceptional group of learners. For example, participants who teach this group of learners were asked about the challenges they face and the educational framework they work according to. Conversely, participants who do not directly teach such students were asked about the programs and accommodations followed for this group of learners in school. Both interviews comprised of 14 questions in total, one of which was exploring the demographics and career experience of participants, two of which were examining participants knowledge on gifted students with ASD, and the remaining 11 questions investigated the provisions and special programs offered for gifted students with ASD. Specifically, the questions explored identification process and tools used for this group of learners, individualized educational plans and policies followed for this group of learners. The questions were derived based on the research objectives and aimed to answer RQ1. For all participants of this group, the interviews were conducted and recorded virtually through Zoom, and ranged between 30 to 45 minutes in duration. These recordings were then transferred to audio files, which in turn were used for transcribing the interviews. Table 4.7 displays the questions used for both categories of participants (educators teaching twice-exceptional students versus educators who do not) to explore the provisions on offer.

Table 4. 7 Interview questions exploring the provisions on offer for gifted students with ASD in school

Participants teaching/have taught gifted students with ASD	Participants not teaching gifted students with ASD
1. What are the policies/procedures that you follow in the school regarding such students	Do you think you have ever come across such students? Why do you think so? What are the characteristics that made you recognize your this?
2. What are the identification tools/practices used to identify gifted students with ASD in your school?	Do you think your school is ready to take on such students? Why/why not?
3. What are the services/program your school offers for this group of students?	How do you identify student giftedness in the school? How do you identify ASD in school?
4. Does your school offer differentiation/IEP/curriculum modification etc.? please elaborate	Do you offer provision for students with ASD? Do you offer provision for gifted students?
5. Does your school offer any type of socio-emotional support to such students? Such as counseling, support groups etc.	Does your school offer any type of socio-emotional support to such students? Such as counseling, support groups etc.

6. What other factors guide/influence you when organizing learning for this group of learners?

What are the services/programs your school offers for gifted students?

What are the services/programs your school offers for students with ASD?

7. What are the biggest obstacles and challenges you face in providing support for this target group?

Does your school offer differentiation/IEP/curriculum modification etc.? please elaborate

8. In your opinion, how do you think gifted students with ASD perceive the provisions

offered? what problems/challenges do you think that such students face?

Describe any training/professional development that you have received on special education provision including Gifted and Talented.

9. Describe any training/professional development that you have received on special education provision including Gifted and Talented.

Describe any training/professional development that you have received on special education provision including autism

10. Describe any training/professional development that you have received on special education provision including autism

What are your recommendations for developing provisions of gifted students with ASD in school?

| 11. What are your recommendations for developing provisions of gifted students with ASD in school? | Would you like to add anything else on this topic? |

Student interviews

There is a body of research (Cook-Sather, 2006; Brasof, 2015; Klemenčič, 2018; Bourke & Loveridge, 2018) which has revealed that there are several benefits to capturing the student voice in any research that targets reform in educational practices. The participation of students in research boosts their self-esteem and empowers them (Powell & Smith, 2009), also the student voice may bring forth a perspective often overlooked by policymakers, stakeholders, and decision makers (Carey, 2013; Warren & Marciano, 2018). Fraser et al. (2014) argues that children and young people are the most involved and knowledgeable about the research area under investigation and are therefore the most motivated to solve the "problem" at hand. Thus, this study was developed to capture the student voice, presenting their own perspectives, and most importantly, because students have the right to participate in research, particularly as this type of research concerns their education.

Evidently, one of the most challenging interview protocols developed by the researcher was the interview protocol for gifted students with ASD. This was partially due to the lack of available instruments designed particularly for this group of learners, but also due to the extremely sensitive nature of such participants. Due to personal traits and characteristics such as emotional regulation issues or social communication challenges, formal interviews with autistic individuals may raise significant issues (Murphy, 2018). In fact, interview challenges with autistic participants have been reported in some studies (Kuo et al. 2018; Scott-Barrett et al., 2019), with the vast majority reporting English language difficulties, including understanding of metaphors, irony, and abstract language. Accordingly, the researcher was cautious while searching for guiding interview protocols that took such considerations into account. After an intense and

thorough search for a suitable guiding protocol, the researcher retrieved an instrument used for twice-exceptional students developed by Reis et al. (1995). This instrument was used to explore the lived experiences of twelve twice-exceptional adolescent students at the University of Connecticut and consisted of twenty-nine questions, exploring student experiences and the support programs offered at school, and even home. Seeing as it was relevant to the objectives of this research study, it was deemed appropriate to utilise this instrument as a roadmap and guide to be followed for the development of student interviews. Accommodating for the specific target population and context of this study, modifications, additions, and deletions were made to the original interview protocol. As a final outcome, the interview protocol used for the student participants of this study consisted of thirteen questions that explore the differentiated support programs offered in school and students' perception of these. Additionally, the interview questions explored students' recommendations and suggestions for improvement of such provisions offered in school. Although the interview questions were aligned with the research questions, it is important to note that the two first questions were not directly related to any of the three research questions. Rather, the researcher aimed to gain an in-depth understanding about the giftedness 'label' of students and the association between this and the educators' interviews and survey results. Table 4.8 demonstrates the alignment of research questions with the student interview questions.

Table 4. 8 Alignment of research questions with interview questions

Research questions	Interview question
-	1. What are you gifted in/very good at?
-	2. How did you know that you are gifted?
1, 2	3. Tell me about the type of support that you receive in school. Is it different from your classmates or the same? Tell me more.
1, 2	4. Do you have any individualised/special plan (IEP) or special curriculum that you follow? Tell me more about the work you do and assignments.
2	5. In what ways do you find the support that you receive in school helpful?
2, 3	6. Can you tell me about any support that you receive in school that is not helpful?
2	7. If you do have different work from your classmates, how do you feel about this?
2	8. Do you receive any socio-emotional support in school like counselling, social groups, 1:1 support? If yes, how do you feel about this?
2, 3	9. Who is encouraging you to do well in school? In what ways do they encourage you?
2, 3	10. If you face challenges in your school, can you tell me about some of them?
3	11. How do you wish to be supported in your school? What would you like to see more of and less of?
3	12. What would you recommend to teachers and others in your school to develop your gifts/talents?
3	13. What would you recommend to teachers and others in your school to overcome the challenges that you face in school?

In an attempt at creating a safe space where students could feel more at ease during the interview, they were asked about their preferences for having a parent or a teacher attending the interview. Out of four students, two students indicated their preference of parent attendance. Despite their presence, there was no involvement or interference during the interviews. The interview with student S1 and S3 lasted for 45 minutes each, 25 minutes with S2 and 20 minutes with S4.

4.4.2 Survey

One of the most popular research methods that has been used more frequently than any other throughout the past few decades is surveys (Glasow, 2005; Lavrakas, 2008; Fowler, 2013; Ponto, 2015). This is a method used to obtain data from a target population on a particular topic by listing a set of structured questions with the aim of collecting participants feedback, insight, and perspectives (Nardi, 2018). It has several advantages including its flexible research design, low cost, and convenience (for both the participant and researcher). Yet, one of its limitations is the validity of the research data that may be impacted by survey response bias, as well as high participant dropout rates (Walliman, 2016). To manage response bias, the researcher followed the recommendations in the literature which included: asking neutrally worded questions (Freedman et al., 2003), avoiding leading questions (Freedman et al., 2003; Krosnick, 2018), ensuring participant anonymity (Mulder, 2014), and breaking down difficult concepts or definitions (Kasunic, 2005).

For this study, the survey was shared with educators and school leaders via e-mail and the LinkedIn social media platform for professionals. It was constructed with a mixture of questions, including open-ended, closed- and multiple-choice questions. Questions were partially selected from the "Twice-Exceptional Needs Assessment Survey" developed by Foley-Nicpon et al. (2013) and intended primarily to assess the knowledge and awareness of educators on twice-exceptionality. The rationale for adopting this instrument is both its relevance to the investigated topic but also the lack of other available research tools that would suit the specific target

population investigated. For this reason, questions were modified, deleted, and added to the survey to better fit the geographical region under investigation and to emphasise autism in twice-exceptionality. This survey was used as one key instrument to answer RQ1 (exploring the provisions on offer for gifted students with ASD in school). It contained 23 questions that explored educators' awareness on gifted students with ASD, the provisions offered for such students as well as participants demographics. Questions 1-7 covered general demographics of participants such as name, gender, nationality, name of school, years of experience, and job title. This was important to situate the context of this research. Question 8-18 explored the provisions offered for gifted students with ASD in school, while questions 19-23 examined the awareness of educators on twice-exceptional students (with a focus on ASD). Although the focus of this study is on the provisions for this group of learners, it was deemed necessary to further explore the awareness of educators on twice-exceptionality.

As this study was conducted in Dubai, the questions of the survey were amended to better fit the site and context under investigation. Questions 8-18 that explored provisions covered questions on the identification process, individualized support, IEP, curriculum adjustments, and policies. Such examples are "*Please tick the areas of support provided in your school to **students with ASD***" and "*Please tick the areas of support provided in your school **to gifted students***". These options included:

- o Screening/evaluation
- o Modified/adapted curriculum
- o Individualized Education Plan (IEP)
- o Enrichment
- o Grouping
- o 1:1 pull-out sessions

The justification for separating 'ASD' and 'gifted' into two different questions in this survey is based upon the pilot survey that was carried out with educators and school leaders. It was observed that the vast majority of educators responded with "no support services" when asked

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"*Please tick the areas of support provided in your school to gifted students with ASD*". Hence, it was decided to include two questions separating ASD from giftedness. As the researcher was mainly addressing the provisions for the gifted student with ASD, a further (open-ended) question was then added "*Please describe the type of support you offer to students in your current/previous school (in Dubai) who have been identified as gifted with ASD*". Table 4.9 displays questions 8-18, which explores the provisions for gifted students with ASD.

Table 4. 9 Survey questions exploring provisions

No.	Question
8	How would you define a gifted student with ASD? Select only one
9	Do you teach any student identified as gifted with ASD?
10	Have you been made aware of the gifted students with ASD in your school/class?
11	Have you received any training on gifted students' provision?
12	Does your school provide Individualized Education Plans (IEP) for gifted students with ASD?
13	Does your school have an identification process for gifted students with ASD (or twice-exceptional students)?
14	Does your school provide support for gifted students with ASD (or twice-exceptional students)?
15	Does your school have a policy for gifted students with ASD (or twice-exceptional students)?
16	Do you offer any type of support to students in your class who have been identified as gifted with ASD?
17	Have you been involved in the developing of an Individualized Education Plan (IEP) for any of your students?
18	Please select the support services that are offered in your school when working with gifted students with ASD. Check all that apply.

4.4.3 Document Analysis

Document analysis is an approach used in qualitative research that systematically analyzes documentary evidence in order to answer a specific research question (Bowen, 2009). It requires careful examination and repeated review of the data for the purpose of gaining meaning and constructing knowledge around the topic under investigation. This approach is often used in combination with other research methods such as interviews and observations, as such methods will not offer a complete understanding of the phenomenon examined. Specifically, for novice researchers, taking notes while observing simultaneously is challenging because of their inexperience to carry out both at the same time (Creswell, 2016). Although completing a document analysis can help alleviate some of the challenges qualitative researchers usually experience, some issues in the use of document analysis have been reported in the literature (Morgan, 2022). Similar to interviews and observations, documents on their own are not sufficient in uncovering information to present a complete understanding of the topic investigated (Si et al., 2022). One issue that may arise with the use of document analysis is the biased selectivity (Bowen, 2009). For example, when an external examiner assesses the documents of an organisation, the representatives of this organisation can provide documents that align with the values of the examiner or the guiding body that is supposedly followed (Bowen, 2009). Hence, public records that may appear objective may in fact be predisposed to bias. To overcome this issue, document analysis was used in this study to triangulate findings gathered from the participant interviews and survey. Greenberg (2016) noted that this approach to triangulation may elucidate, refute, or corroborate study findings and so help guard against bias.

A further weakness of document analysis is working with limited data (Morgan, 2022). As with this study, researchers do not typically gain access to all available documentations relevant to their research. Pre-existing data may also provide unrepresentative samples and limited information. Therefore, Miles et al. (2018) argued that based on the available data, researchers may need to modify their study focus or research questions. To manage this issue and avoid tweaking of the research focus, the researcher ensured that the document analysis was conducted using the most relevant guidelines/publications to this study. Some examples of these are the

policies for gifted and talented students in schools, inclusion policies, and governmental publications. Essentially, document analysis was used in combination with other research methods for the purpose of garnering additional data (that may not be retrieved through surveys and interviews) and for triangulation.

Greenberg (2016) classified document analysis into three primary types of documents. The first type is public records (that includes official documents of an organization's policies, manual etc.), the second type is personal documents (e.g., an individual's blog, calendars, journals), and the third is physical evidence, also referred to as artifacts (e.g., training material, handbooks, flyers). For this study, the researcher had initially planned the use of document analysis through obtaining both public records (i.e., school policy and manual for inclusive practices) and personal documents (i.e., students' transcripts, IEP, lesson plans etc.). However, due to several uncontrollable challenges (the main one being confidentiality of such records), many such documents were not accessible to the researcher. The documents accessible to the researcher that were used for triangulation were governmental publications (from the KHDA and Ministry of Education) and certain specific school public records such as the inclusion policy and framework followed. These included:

- School of All (Ministry of Education, 2008)
- Inclusive Education Framework (KHDA, 2020)
- KHDA inspection report (KHDA, 2018/2019)
- School inspection framework (KHDA, 2018)
- Directives and guidelines for inclusive education (KHDA, 2017)
- Dubai inclusive education policy framework (KHDA, 2017)
- Gifted and talented policy (School B, 2016)
- Inclusion policy (School E, 2018)
- Most Abled Gifted and Talented Policy (School A, 2020)

Data analysis

Semi-structured interviews

Thematic analysis is well-known for being one of the most oft used forms of data analysis within qualitative research (Joffe 2012). In thematic analysis, the researcher identifies, analyses and interprets patterns of meaning, referred to as "themes" within data. Due to its flexible approach in interpreting data, it allows the researcher to organize and approach large sets of data by categorising them into broad themes (Moser & Korstjens, 2018; Allen, 2017). As this research aimed to reveal the lived experiences of gifted students with ASD in Dubai schools, a thematic analysis approach was used to 'go beyond data' and obtain a deeper understanding of student perspectives. Having said that, thematic analysis has also been criticised for being a precarious approach to data analysis due to the risk of missing nuances in the data. As this approach relies on the researcher's judgement and subjective interpretation, it is important for researchers to reflect carefully on the interpretations and analysis of the data (Sundler et al., 2019; Clarke & Braun, 2013). To address some of the concerns and issues in conducting thematic analysis, the researcher demonstrated (in section 4.5) that data analysis has been done in a consistent and precise manner. This was done through systemizing, recording, and presenting the methods used for analysis (Nowell et al., 2017). In line with Clarke and Braun (2013) recommendations for overcoming issues with thematic analysis, the researcher disclosed sufficient details on the process of data analysis to demonstrate that the process is credible. Further details on this process can be found in section 4.4 that demonstrates the data analysis process, and section 4.5 that presents trustworthiness of this research.

Despite the common practice in academia of using transcription software or recruiting an external support for transcription (Bucholtz, 2000), the researcher was determined to conduct the transcription on her own for several reasons. The first reason was the sensitivity of the data, and to ensure that no important details were missed (Richardson, Haworth, & Deamer, 2022). Secondly, the researcher wanted to avoid external influence on the data analysis and to ensure that no phrasing or wording was altered or potentially misinterpreted. Lastly, the researcher had assured participants that interviews and data would be kept confidential and that nobody else

would have access to such recordings except for the researcher (Arifin, 2018). Therefore, after each interview was conducted, the researcher listened to the recording meticulously in order to familiarise herself with the data before starting the actual transcription. This method, called familiarisation (Braun and Clarke, 2013), is useful for the qualitative researcher to engage with the data and begin to form initial impressions of topics discussed by participants.

Thematic analysis

A thematic analysis was used for analysing the data in this study. This is one of the most commonly used methods in qualitative research as it allows the researcher to identify, describe, and interpret themes to represent the lived experiences of the target population being explored (Braun and Clarke, 2006). According to Braun and Clarke (2013), there are six phases of Thematic Analysis, and these were adhered to by the researcher.

The first phase is 'familiarization', which is the process of becoming familiar with the data by repeatedly listening to the interview recordings and re-reading the transcripts. At this stage, the researcher spent an extensive amount of time re-reading the interview transcripts to (1) ensure that it is in true alignment with the interview recordings (without any missed details), and (2) to observe and explore topics discussed by participants. By doing so, the researcher noted down significant areas of conversation that were frequently mentioned or of significant importance to participants. This time spent in the familiarisation stage enabled the researcher to become conversant with the participant stories.

The second stage of thematic analysis according to Braun and Clarke (2013) is 'generating the initial codes'. Simply put, coding refers to highlighting sections of the text, such as phrases, and creating a shorthand label or 'code' that describes their content or meaning (Terry et al., 2017; Guest et al., 2011). Coding can be conducted through either an inductive approach that allows the data to establish the themes, or a deductive approach, which is based on preconceived themes expected to be found based on the literature (Williams & Moser, 2019). To generate the initial

codes, the researcher used a combined approach of both inductive and deductive coding. Initially, a deductive approach was used where the codes were pre-defined, based on the theoretical framework of this study, and in line with relevant phrases and statements made by participants. For example, the researcher created a sheet (with tables) with the predefined codes that were expected to be found such as identification of student, individualisation, and socio-emotional support. Coding was conducted manually by the researcher through a Microsft Excel sheet that clearly defined each code and the relevant participant statement. Table 4.10 depicts a representative summary of the coding.

Table 4. 10 Representative summary of coding

	Participant quotes		
	E1	**E2**	**E3**
Code for RQ1:			
Identification	*We actually doing like assessment for only for that autism, not for the talented, and gifted*	*So honestly, I don't really have, I mean I haven't used, you know, proper tools. I think I'm just kind of going with was my feeling and my gut feeling*	*Yeah. he was never identified as gifted it's just something that I observed*
Individualisation	*we are doing a plan for these weaknesses but not for the giftedness*	*I know he has an IEP for his kind of social skills, but not for his giftedness*	*Yes, for autism we offer the curriculum modifications and for the regular teachers, they offer differentiation*
Socio-emotional support	*Social support, I try to cover anything related to his communication with others*	*So yeah, we do have a school counsellor. I'm again. I'm not really aware of if he sees the school counsellor,*	*he's not getting any counselling or social support; he is doing ok on his own*

As Table 4.10 reveals, codes were colour-coded for the convenience of the researcher and to highlight relevant participant statements, according to the code during the familiarisation phase. During the second stage of the thematic analysis, different codes, other than the pre-defined ones, were generated while reading through the participant transcripts. Such examples include 'uncertainty' and 'recommendations', and these were derived from an inductive approach.

The third phase of thematic analysis is the 'forming of the initial themes'. At this stage, the researcher clustered codes with similar meanings together. Subsequently, these clusters were labeled based on the relationships shared among the codes. These were then examined carefully to observe if there were additional relationships between the clusters themselves (Maguire & Delahunt, 2017). In this sense, themes were established based on the patterns of the codes, by combining several codes into one theme. Table 4.11 demonstrates the process of creating the themes.

Table 4. 11 Creation of initial themes

Codes	Theme
• Incorrect facts • Confusion • Limited knowledge	Uncertainty
• Positive emotions • Negative emotions • Bullying • Teacher attitude	Student school experience

Fourthly, the 'themes were taken and reviewed against the data'. According to Braun and Clarke (2013), this process ensures that themes capture significant aspects of the data without excluding important details. This was achieved by revising participants' transcripts after creating the initial themes, which in turn led to a number of changes. Firstly, some themes that connotated a similar meaning, for example "social challenges" and "inappropriate behaviour" were merged into one theme labeled "student challenges". Secondly, themes that did not contain sufficient data were omitted. Thereafter, in the fifth phase of thematic analysis, 'themes are defined and named'. This involves utilising the labels that were created by the researcher and providing them with a comprehensive name that illustrates the meaning conveyed (Braun and Clarke, 2013). After

careful examination of this study's data, the researcher ultimately defined the themes and re-named some to better describe the shared meaning between the different codes.

In the sixth and final phase, the researcher initiated the 'writing up of the final report'. This involves a presentation of the findings and interpretation of the data. The final report of this study was presented in the form of a Microsoft Excel document (see Table 4.12). The researcher divided each research question into a distinct sheet by separating the participant responses, which simply means educators were separate from students. RQ1 for instance was answered by both group of participants (educators and students), but the researcher deemed it necessary to divide the responses between these two groups as certain codes differed between the two groups. Table 4.12 is a demonstrative summary of the data presentation separated by codes and themes.

Table 4. 12 A demonstrative summary of the data presentation separated by codes and themes

Participants quotes	(SEN teacher) code: E1	(Math teacher) code: E2	(SEN teacher) code: E3
Codes			
Identification / assessment	Actually in the beginning we have to talk with anyone related to this student like the parents or the teachers	So honestly, I don't really have, I mean I haven't used, you know, proper tools.	in the inclusion department, so so I would use like the usual assessments and also worksheets that we we need to find out if we have cases like this.
	We can do it tests exams in different area in math and science and English and Arabic.		So one thing is I don't think our school has that assessment tool that students can actually show if they have a talent for example in music.
	We actually doing like assessment for only for that autism, not for the talented, and gifted		They don't really have like a formal assessment, but I did have like experiences with this kid. With really, really high level of ability in some specific areas
			Yeah. he was never Identified as gifted its just something that I observed

4.4.4 Pilot study with students and educators

Conducting a pilot study is possibly one of the most important steps to take when performing any research, as it intends to assess the validity of a data collection instrument on a small scale prior to proceeding with it in the main research (Fraenkel & Wallen, 2009). In other words, a pilot study aims to verify if the questions of an interview and survey serve their purposes as the researcher intended them to; it is vital to ensure this before conducting the main study and then

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generalising results to the entire sample population (Creswell, 2012). Furthermore, a pilot study should ensure reliability by testing the consistency of the questionnaire, if repeated at several instances (Reh et al., 2011). Indeed, if the questions of the data collection tool appear invalid or unreliable, the researcher is able to identify and rectify them before the initiation of real data collection. Moreover, it can assist the researcher in improving the actual research protocol, providing a first impression of the data analysis (McLellan et al., 2003).

Despite adopting previously established interview protocols (Reis et al., 1995; Foley-Nicpon et al., 2013) for both the student interviews and educators survey, it was deemed necessary to adapt and make necessary changes to the original questions to fit within the context of this study. For this research, a pilot study was conducted over three separate phases. The first phase was conducted through a semi-structured interview with one gifted student with ASD; the second phase was conducted through semi-structured interviews with two educators, and the third phase was conducted with three educators who participated in the survey. When developing the survey and interview questions, the researcher made changes relevant to Dubai's education system, and specifically relevant to gifted students with ASD rather than the generalised category of twice-exceptional students.

After conducting the pilot study, the researcher reached to a set of conclusions and made changes accordingly to all instruments used. The following adaptations were made:

Survey (Educators):

As Van Teijlingen & Hundley (2002) argued, pilot studies can aid the researcher with the detection of ambiguous phrases or terminologies used, as well as the order of questions and its impact on responses. In the first version of the designed survey, the term "twice-exceptional" was used in a number of questions. However, due to participants' limited knowledge and familiarity with this term, it was replaced with the term "gifted student with ASD". A further observation was that participant responses in the pilot study demonstrated limited, or no provisions offered for gifted students with ASD. Thus, to examine the gifted provisions and

special education provisions, questions were separated into two distinct sets that addressed giftedness and autism separately. One such example is evident in Table 4.13.

Table 4. 13 Example amendment to the survey after a pilot study

Initial question (in pilot survey):	Refined question (in post-pilot survey):
o Please tick the areas of support provided to *gifted students with ASD* in your school.	o Please tick the areas of support provided to *gifted* students in your school o Please tick the areas of support provided to *students with ASD* in your school

A further adjustment made by the researcher was related to identification and screening of students. Rather than separating the questions between gifted and autism screening, the question was altered to:

"16. Select the processes that are currently in place in your school:

- o Identification/screening process for students with ASD
- o Identification/screening process for gifted students
- o Identification/screening process for gifted students with ASD
- o None of the above"

As a final outcome of the pilot study, four questions were expanded as the term autism and gifted were separated (such as the example presented previously), five questions were omitted from the original survey as it was deemed irrelevant to the research objectives, and three questions were altered in terms of wording. It is important to note that participant responses from the pilot study were excluded from the final data analysis to ensure consistency (Van Teijlingen & Hundley 2002).

Interviews (educators)

For the semi-structured interviews conducted with educators and school leaders, the pilot study was conducted with two participants. Based on these pilot interviews, adjustments to the interview questions and the order of questions were made. In the pilot interview, questions started directly with exploring the provisions offered for gifted students with ASD in school; however, it was evident from their responses that they had limited awareness about the nature of such students, therefore, three questions about the understanding of this group of learners were added to the post-pilot interview. A further adjustment made based on the pilot study was the separation of questions, and a different set of questions, to educators who are teaching a gifted student with ASD versus educators who are not teaching such a student. This was deemed important as it had a significant impact on participants' knowledge of the student's nature and about the support programs offered in school.

Reio (2016), in agreement with other scholars (Qu & Dumay, 2011; Kelley et al., 2003) argues the importance of presenting interview questions that are unambiguous, concise and serve the research purpose. For this reason, a further adjustment made was the omission of two questions (questions 4, 7) that were apparently repetitive since they served the same purpose of other questions in the interview. Two additional questions (5 and 9) were also omitted due to their irrelevance to the research question. Question 5 for instance asked "*In your opinion, how can you develop the talent of a gifted student with ASD*?", was not deemed relevant to RQ1, which actually aimed to explore the provisions in school for such learners. Similarly, question 9 said "*Describe your knowledge of the Dubai KHDA inclusive education framework",* did not truly align with the research objectives of this study, as the researcher did not establish a relevant association between the research questions and educators' awareness of the KHDA framework.

Following the recommendations of Meissner (2021) and Mannan & Afni (2020), the researcher decreased the number of interview questions in an effort to avoid participant boredom and other factors that may impact responses, subsequently impacting the trustworthiness of the results. Therefore, four questions were merged into two due to their similarities. One such example is visible in Figure 4.2.

Pilot interview questions

o Have you identified children in your class as gifted? What are the characteristics that made you recognize your student's giftedness?

o How do you discover/identify student giftedness in the school
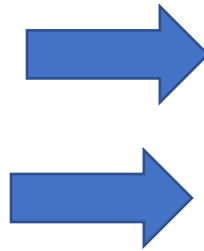
Post-pilot interview question (merged)

What are the identification tools/practices used to identify gifted students (with ASD) in your school?

Figure 4. 2 Changes after educator pilot interview

All in all, the initial interview at pilot study stage, consisted of 20 questions, while the post-pilot interview was reduced to 14 questions.

Interviews (students)

Due to the difficulty in obtaining and recruiting gifted students with ASD in this study, the pilot interview was conducted with only one student. Despite this, the pilot interview highlighted multiple areas, which were in need of improvement. Unlike the educators' interview protocol, the main issue with the interview questions for students was the wording and phrasing. As anticipated by the researcher, the student who took part in the pilot interview demonstrated challenges in the comprehension of certain questions. As a result of this, questions were modified and (unlike the educators' interview) increased. The rationale for this was to expand the number of questions for the purpose of elaboration (Ryan et al., 2009). Such questions were added to gain a deeper insight into the students' experiences. In the pilot interview, questions were too broad and general, and were often not specific enough

for the student comprehension. One example of a question in the pilot interview and the replacement is clear to see in Figure 4.3.

Pilot interview question	Post-pilot interview questions (expanded)
Tell me about the type of support to help you that you receive in school.	- Do you have any individualized/special plan (IEP) or special curriculum that you follow? - Tell me more about the work you do and assignments. - Do you receive any socio-emotional support in school like counselling, social groups, 1:1 support? - If yes, how do you feel about this?

Figure 4. 3 Changes after student pilot interview

Yet, to avoid a lengthy and potentially distressful interview experience for students, the researcher merged some questions together while omitting others that did not align with the research objectives. A further observation that was made by the researcher based on the pilot interview was the phrasing and sequencing of questions. According to some authors (Wadge et al., 2019; Lucas & Norbury, 2014; Brown et al., 2013), individuals on the autism spectrum struggle to understand abstract and ambiguous language. Considering this issue, the researcher altered some questions, which appeared too challenging due to the wording. One such example of an ambiguous question was "*How do you wish to be supported in your school*?", which was replaced by the more specific question "*What would you like to see*

more of/less of in school?". Several other phrases that could be misinterpreted or considered ambiguous, were altered and replaced in the post-pilot interview. Consequently, the initial interview (in the pilot study) consisted of 11 questions, while the post-pilot interview was increased to 13 questions that were used with probes.

4.5 Trustworthiness of the study

According to Lincoln and Guba (1985), the goal of 'trustworthiness' in the context of a qualitative research project is to "support the argument that the inquiry's findings are worth paying attention to" (Lincoln & Guba, 1981, p. 290). This is particularly important when the researcher adopts an inductive content analysis, such as the one used in this study, in which categories or themes are formed from the raw data (Kyngäs, 2020). To ensure trustworthiness, Guba's (1981) four constructs of (a) credibility, (b) transferability, (c) confirmability, and (d) dependability for the trustworthiness criteria were used. An explanation of the description and use of each construct in this study are presented below.

The concept of 'credibility' in qualitative research is very similar to the notion of internal validity in quantitative studies. Essentially, it is a measure of the value or truth of a research investigation and the accuracy of findings (Bush, 2012; Roberts & Priest, 2006; Golafshani, 2003). To a certain extent, credibility relies on the researcher's subjective interpretation and her research methods. Thus, Bush (2012) proposes several procedures to be used to increase the credibility of qualitative studies which include triangulation, member checks, prolonged engagement with data, and persistent observation. Such procedures were therefore used by the researcher at the times when this was possible. Merriam (1998) states that "*Triangulation is the use of multiple investigators, multiple sources of data, or multiple methods to confirm the emerging findings*" (p. 204). Accordingly, to achieve triangulation, data was collected from numerous types of participants, including students, educators, administrative staff, and school leaders. Additionally, methodological triangulation was achieved by using different data collection methods, which included semi-structured interviews, surveys, and document analysis. Prolonged engagement with the data also took place, in fact the researcher spent a full year of consistently and frequently going over data, searching for alternative or other possible meanings that could be found. However, due to the unanticipated COVID-19

circumstances that led to a lockdown in the country, the researcher was not able to conduct persistent observation (particularly in the classroom setting).

Finally, to offer a 'true' account of participants' viewpoints, verbatim extracts were extracted from participant interviews to explain how themes emerged from the data set and were subsequently categorised. This is not to say that such extracts represent the entire truth, but rather that such quotes act as 'snapshots' of some of the participants' experiences.

The notion of 'Transferability' in qualitative research is comparable to the concept of generalisability in quantitative research (Walker et al., 2010). Put simply, it refers to the extent to which the study's findings are applicable to other settings and contexts (Polit & Beck, 2010). In order to demonstrate transferability in research, Shenton (2004) proposed using thick descriptions, which include participant data, research methods used, and sufficient data on the context of the study. This was achieved by providing sufficient detail about the context of this study, including ample information about the methodology and participants of this study. Furthermore, to ensure that the context of the study is clear to readers, a separate chapter about the education context in the UAE was written as part of this thesis; it included an in-depth description of the current educational framework in place for the target population investigated, in addition to the implications of this in the Emirati cultural context. Nevertheless, this is not to claim that participants of this study are entirely representative or that the study is completely generalisable.

'Confirmability' can be described as objectivity, simply meaning that the research is neutral and free of the researcher's influence or bias (Toma, 2011). According to multiple experts (Kyngäs, et al., 2020; Nowell et al., 2017), trustworthy research should reflect data collected from participants in an objective manner. This is often achieved by presenting an audit trail which details the step-by-step data analysis process, demonstrating that such analysis is bias-free, and accurately portray the responses of participants. Accordingly, a complete section (section 4.5 on trustworthiness) of this chapter offered an in-depth description of the data analysis process to demonstrate that the derived data portrays the participants' voices and is not influenced by the researcher's conscious or unconscious bias. Moreover, confirmability

was achieved from the researcher by practicing reflexivity and being mindful of her own assumptions, beliefs, and values that may somehow influence the data. This was reflected in the questions of the semi-structured interviews specifically, which were amended and improved after the pilot study, because some questions seemed somewhat 'leading'.

The final construct proposed by Guba (1981) for trustworthiness criteria is 'dependability'. This is used to demonstrate or evaluate the consistency and reliability of the findings. Indeed, Shenton (2004) posits that dependability is achieved by presenting the exact data collection methods, analysis and interpretation and offering the reader adequate contextual information so that the study could ultimately be replicated and yield consistent outcomes. In accordance with this, the researcher clearly presented the methods used in this study with adequate details for the study to be replicated. However, with respect to dependability, it is important to note that this same study may not necessarily generate consistent outcomes if replicated in another culture, setting, or country, due to a multitude of confounding variables, including but not limited to the education system, laws and policies of the country, and the culture. Figure 4.4 presents a summary of the procedures taken to ensure trustworthiness of the study according to Lincoln and Guba (1985) four criteria of trustworthiness in research.

Credibility	Transferability	Confirmability	Dependability
triangulation, and prolonged engagement with data	providing enough detail on the context of this study	complete section with an in-depth description of the data analysis process	presentation of the methods used with adequate details for the study to be replicated
verbatim extracts presented from participant interviews	separate chapter on the education context in the UAE (chapter 3)	practicing reflexivity and being mindful of own assumptions, beliefs, and values	

Figure 4. 4 A summary of the procedures taken to ensure trustworthiness of the study

4.6 Ethical considerations

Ethical values must be a thread running through the whole research process (Hesse-Biber, 2017). As the researcher has a great impact on a wide community of people (including policymakers, practitioners, and other researchers), she must take full responsibility to ensure that research is conducted in accordance with ethical guidelines and protocols (Birch and Miller, 2012). More specifically, the researcher may exert a negative psychological impact on participants, if research is not conducted in line with ethical values. Thus, Birch and Miller (2012) argue that any research must ensure that (1) participant rights are protected, (2) participants will in one way or another benefit from taking part in the study, (3) the research is implicitly addressing a problem, and (4) the findings are communicated clearly to benefit the society. Furthermore, Melrose (2002) stated:

"Researchers have a duty to ensure that no harm comes to their subjects, whatever their ages, as a result of their agreement to participate in research. If we cannot guarantee that such participation may improve their lives, we must ensure, at least, that our scrutiny of them does not leave them worse off." (p.343)

Thus, the researcher followed a set of ethical guidelines based on the University of Glasgow ethics guidelines in research. Firstly, ethical approval for this study was sought from the University of Glasgow's Ethics Committee and was approved in April 2020. In line with the University of Glasgow ethics guidelines in research, the following measures were taken:

Firstly, all collected data was utilised strictly for serving the purpose of this research and was not shared or used elsewhere. Prior to participation, educators and students were asked if they wished to withhold any potentially intrusive/sensitive information. All data, transcripts and texts were stored safely on the researcher's computer in password protected folders; and in accordance with principle 5 of Data Protection Act 1998 (The National Archive, 2005), the researcher shall ensure the destruction of all data upon the completion of study.

Secondly, all participants and school authorities were informed of the research purpose, practices, benefits, and possible risks. This was clearly communicated both verbally and orthographically in a consent form that participants signed as an indicator of their approval to participate in the study. The informed consent form clearly stated that participation is voluntary. Furthermore, parents or guardians of the students taking part in this study were also required to sign a consent form; and participants were made aware of their right to refuse to take part in the study or to withdraw at any stage of the research without having to provide any justification (Sim & Waterfield, 2019).

Thirdly, names of the participants were kept completely anonymous, and the researcher used a coding system for any referencing of the participants and their responses (Creswell, 2012). Additionally, participants were reassured that the survey and interview data would not be of any possible threat to their reputation or future career. Fourthly, for student participants, the researcher designed an easy-to-read Consent Form, which was utilised for children or participants needing a simplified version. This was based on the University of Glasgow's sample consent form for children. In addition to the mentioned practices applied by the researcher to ensure the incorporation of ethical standards, Farrimond (2016) lists a set of six principles that aim to guide decision making in ethical practices:

1) Respect for individuals (autonomy and safeguarding of the vulnerable)
2) Justice (treat people fairly)
3) Beneficence (do good)
4) Nonmaleficence (do no harm)
5) Fidelity (do not lie/fabricate, be honest)
6) Academic freedom. (Farrimond, 2016, p.76).

The researcher followed these principles throughout the entire research study (before the start, during the study, and upon completion) by ensuring respect for participants, treating participants fairly, ensuring no psychological or physical harm was done, and by being totally honest throughout each research phase. This was important in order to follow the university's ethical procedure due to the sensitive nature and context of this study. Apart from the academic freedom principle (that was of no relevance to this study as it was not

funded by an external authority), the researcher kept in mind the five other principles throughout the complete process of this research.

4.7 Conclusion

Chapter four has presented the methodology, tools, practices, and approach used to answer the research questions of this study. It explained the rationale for using the set research approach and attempted to explain how the research tools assisted in meeting the research objectives.

The chapter started with an overview presenting the research questions, aims of the study and presentation of the sub-sections. The research design and approach was based on a pragmatic research paradigm, which was followed using a qualitative approach adopting a quantitative tool (survey) to garner data. The context of the study was based in Dubai mainstream schools, with a focus on institutions employing UK and US curriculums. The sample population included educators (subject teachers as well as SEN teachers), school leaders and gifted students with ASD. Data collection tools used were semi-structured interviews (for educators and students) and a survey for educators. Questions of these tools were based partially on a previously conducted study, examining the awareness of twice-exceptional students in educators (Foley-Nicpon et al., 2013). Other questions were altered and added based on the literature review and context of this study. Data analysis was conducted using coding and thematic analysis for both interviews and survey, with coding being both inductive and deductive. The pilot study provided significant indications of required modifications to the instruments used, and thus amendments, omissions and additions were made. Finally, the chapter presented, ethical considerations which are followed using the University of Glasgow ethics guidelines.

CHAPTER 5: RESULTS

5.1 Overview

Chapter 4 presented the study's methodology adopted for data collection, which included a survey, document analysis, and semi-structured interviews. This chapter presents the analysis of the collected data from educators and twice-exceptional students in Dubai mainstream schools regarding the provisions on offer for gifted students with ASD, in addition to their perspectives on these provisions. Data has been examined and guided by three key research questions, namely:

RQ1: What are the provisions on offer for gifted students with ASD in Dubai mainstream private schools?

RQ2 How do gifted learners with ASD perceive the currently offered provision in school?

RQ3: What is recommended by gifted learners with ASD in terms of provisions offered in school?

Findings are presented in themes and categorised according to educators' and students' data. Themes are presented in separate sections for the survey and semi-structured interviews. Likewise, student themes are presented for Research Question 1 separate from the educators' data.

5.2 Research Question 1 (from educators' data)

The purpose of Research Question 1 (RQ1) was to examine the current provisions on offer for gifted students with ASD in Dubai mainstream schools, by examining a variety of provisions that have been explored in research and are recommended for gifted students with ASD in mainstream school settings. To answer this question, the researcher conducted semi-structured interviews with educators who were both specialised and non-specialised in SEN education in the context of mainstream schools. Additionally, educators responded to a survey that gathered information about the provisions offered for this target population of students.

Crucially, to answer RQ1, a combined approach of deductive and inductive coding was utilised. Deductive coding was initially used to develop a codebook with an initial set of codes, which were based on the research questions and the research framework of the study. Throughout the analysis process, the data revealed new and significant findings that were not included in the initial set codes, and thus inductive coding was used. This is noteworthy because inductive coding enables codes to be derived directly from the data, essentially leading to more flexibility when organising and interpreting the findings (Nowell et al., 2017; Alhojailan, 2012). The codes developed are presented in Table 5.1.

Table 5. 1 Colour Codes in Text

Sr. #	Colour code in text	Deductive/Inductive
1	Identification	Deductive
2	Provision	Deductive
3	Individualised plan	Deductive
4	Curriculum modification/adaptation	Deductive
5	Socio-emotional support	Deductive
6	Acceleration	Deductive
7	Confusion	Inductive
8	Policy	Deductive
9	Procedure	Deductive
10	Recommendations	Inductive

Thereafter, several themes were developed based on the coding and findings retrieved from the analysed data. These are presented in the subsequent sections, and to ensure clarity with presentation of the findings, results are presented by separating findings of the semi-structured interviews first and then presenting the survey results.

5.2.1 Theme 1: Educators' Challenges, Uncertainties and Needs

The most prominent themes developed from participant data are educators' challenges, uncertainties, and needs. Statements by educators during the semi-structured interviews and extracted from the surveys indicate a remarkable extent of confusion and uncertainty in serving this group of exceptional learners. Themes expressed by participants included 'working based on personal judgement', uncertainty of the 'right way' to work, insufficient understanding of the students' nature or needs, and insufficient training provided by the school. These themes are presented in the following section through three main sub-sections: (5.2.1.1) Uncertainty and challenges, (5.2.1.2) Working based on personal judgement/instinct, and (5.2.1.3) Insufficient teacher training.

5.2.1.1 Uncertainty and Challenges (data from interviews)

One theme that was apparent throughout all educators' interviews was an insufficient understanding of multiple issues and consistent uncertainty demonstrated by their statements. Despite the various emotions expressed, all respondents shared hesitation and ambiguity regarding student identification and student support. Frequently recurring words from the interviews included 'I'm just a little confused', 'I don't know exactly', and 'I'm not sure'. The uncertainty experienced by educators was exhibited in a variety of areas including:

- Identification/diagnosis of student
- The term giftedness
- The concept of twice-exceptionality
- The provision/program offered for this group of learners
  Appropriate support for student

The theme 'uncertainty' was developed from analysing the data and interview transcripts and was one of the most frequently mentioned, and recurrent in the transcripts. Many different words and statements used by participants (both in the interviews and surveys) indicated a sense of confusion, insufficient knowledge, and ambiguity by educators. Almost all participants used some words like "I'm not sure if…", "I don't know if…", and "I'm a little

confused…" when asked about various aspects of the teaching and provisions offered for their twice-exceptional students. These responses appeared when asked about identification, assessment, provisions offered, available policies/procedures, and teacher support. On identification specifically, four out of six participant responses demonstrated ambiguity on the label of giftedness.

When commenting on the identification and assessment process of gifted students with ASD, E3 (an SEN teacher) raised an interesting idea regarding the process and the involvement of the parties in the identification of a gifted student with ASD. Unlike other educators who pointed out the Inclusion Department as a key department for assessment and identification, E3 mentioned that this is the responsibility of the subject teachers. Specifically, he said:

"*So as of now, I think it's the subject teachers who need to figure this out first. We have to figure them out and then once they figured him out, once we trace them, then we can actually start with an assessment and then do recommend probable recommendations about it.*"

Continuing on the topic of provisions offered for such students, E3 stated:

"*So, I'm not sure if we have a program in place yet for these students.*"

When discussing personal experiences and efforts in trying to provide the ideal support for these students, E5 and E6 expressed uncertainty about their own methods of support. The responses suggest a certain level of insecurity and insufficient confidence or knowledge of their own means of support for their students. E6 (an English teacher) for instance, stated:

"*I mean I try my best, but how can I really know if I'm doing the right thing for him*?"

This statement clearly implies that there is a need for meaningful professional development training for educators, not only to increase educators' knowledge but also to raise their confidence levels. Interestingly, this was also suggested in the response of E5 (an Arts teacher) who said:

"*I try to challenge him more. Uh, and if it doesn't, then I'm stuck. I honestly don't know what to do. And I would like to learn how to handle these situations.*"

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In line with many other participants' responses, E5 also mentioned the challenge of offering such students individualised attention, both due to time constraints and class size. She connected this with feelings of uncertainty in meeting the students' needs. Specifically, she stated:

"I think because it's very difficult for us as teachers to give them individual attention. Um, , so they, I I'm sometimes worried that I'm not being, I'm not meeting his needs. Maybe he's got, um, that's the thing. I, I don't know. Even when I try to talk to him, he's very, very quiet."

This statement, like the previous one by E6, indicates feelings of insecurity and insufficient knowledge about how to approach her students. Indeed it demonstrates genuine concern and worry about not meeting students' needs, as well as challenges in the overall communication with certain students. When continuing this discussion, E6 explained that this state of uncertainty in educators is common with this unique group of students and that this uncertainty is usually reflected in the student. She explained that the student herself will not be at ease or comfort when she senses that educators are not aware of how to interact appropriately. This will then reflect negatively on students' social communication and academic performance. Other educators who took part in the semi-structured interviews showed similar concerns, also reflecting their insufficient knowledge on how to best support twice-exceptional students. In summary, the responses of educators indicate a significant level of uncertainty, ambiguity, and lack of confidence in their own ability to best identify and support this group of students. Four out of six responses revealed this mainly in the identification of such students, two responses emphasised the methods of support, while one response highlighted uncertainty in the assessment process.

5.2.1.2 Uncertainty and Challenges (data from survey)

When asked about the main challenges of working with gifted students with ASD, respondents shared a variety of answers, and many responses suggested comparable themes. Seven participants agreed on the main challenge being the identification of these students' needs, six participants mentioned the challenges they face in meeting the socio-emotional needs of this target population, four participants referred to attention deficits/hyperactivity of students as

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being a main challenge, while another four elaborated on educators' insufficient knowledge/training. Figure 5.1 demonstrates the themes that were developed from the survey.
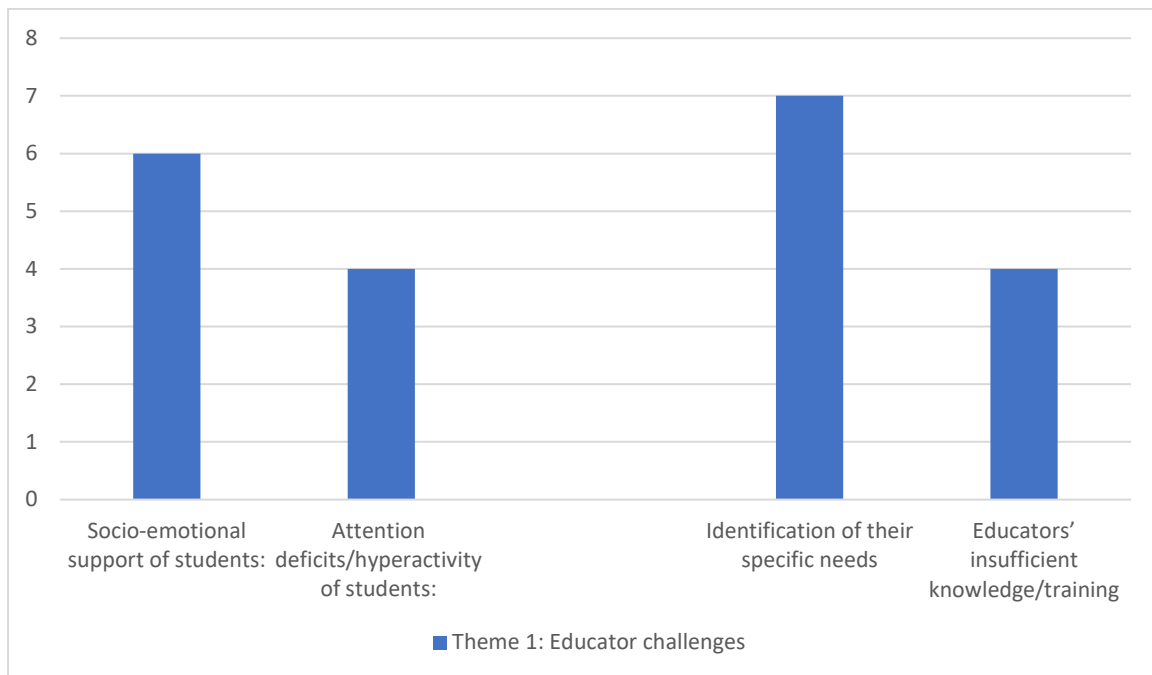
Figure 5. 1 Theme 1: Educators' challenges

Figure 5.1 represents the themes developed from the survey on educators' challenges in working with gifted students with ASD. In terms of the challenges educators reported with the **socio-emotional support** of students, some of the responses can be seen in Table 5.2.

Table 5. 2 Examples of challenges educators reported with the socio-emotional support of students

Participant	Response
P1:	*"socio-emotional skills and putting things across and making them agree to you"*
P2:	*"Getting class teachers work with them is challenging and other kids in class being supportive of this child"*
P3:	*"Trying to meet their academic and socio-emotional needs, as well as provide socialization opportunities".*
P4:	*Managing emotions with academic achievement.*
P5:	*Their inability to express and being understood. Emotional turmoil.*
P6:	*Dealing with the emotional side of the problem behaviors.*

Table 5.3 shows that respondents who referred to **attention deficits/hyperactivity** of students as the main challenge said:

Table 5. 3 Example respondents who referred to attention deficits/hyperactivity of students

Participant	Response
P7:	*Flexibility, attention, and executive functioning skills.*
P8:	*"They are hyperactive"*
P9:	*"Attention and impatience issues"*
P10:	*Inconsistencies in attention.*

Identification of the needs of this target group was the mostly mentioned challenge. Responses are displayed below in Table 5.4:

Table 5. 4 Responses regarding identification of students' needs

Participant	Response
P3	Trying to meet their academic and socio-emotional needs
P11	Proper identification and support
P12	Identification and training the teachers for enrichment in the classroom
P13	Find appropriate activities/ toys.
P14	Identifying the individual needs accurately and making appropriate provisions
P15	Risk of overlooking gifts due to focus on needs
P16	Others are prone to assumptions about pupils with SEND or expect them to be 'savants'

5.2.1.3 Working based on instincts/personal judgement (from interviews)

In connection with the previous notion about educators' uncertainty and ambiguity, a further theme that was apparent and may have developed as an outcome of educators' uncertainty was the use of educators' personal judgments or previous knowledge to identify as well as support gifted learners with ASD in schools. This was observed in five out of six participant interviews, in which personal judgements were mentioned frequently to understand student needs and appropriate learning methods. In terms of identification and diagnosis of student giftedness or autism, three participants referred to the use of their previous knowledge or instincts to 'label' the student. The following statements were made by the participants to explain the role of their personal judgement in the identification process of the student:

"I am sure he has a very high IQ as well. So, that's kind of my own diagnosis of his giftedness." (E2)

"So honestly, I don't really have, I mean I haven't used, you know, proper tools. I think I'm just kind of going with my feeling and my gut feeling and so it's not really, it's kind of like my own kind of diagnosis" (E2)

"Yeah, he was never identified as gifted. It's just something that I observed." (E3)

"I just ah noticed this, in my career I just noticed one boy in our school, he was gifted in reading, Mashallah he was really good in reading from KG itself. I knew he was." (E4)

In terms of the teaching methods that educators are using to challenge students and provide support, findings from the interviews reveal that many are adopting teaching strategies based on 'gut feelings' and 'intuition'. One participant (E5) referred to a trial-and-error approach used with her student to continue with 'what works', while other responses indicated the use of teaching strategies based on self-learning and instincts. E5 specifically stated:

"Uh, I, I'm not sure because I'm just an art teacher. Uh, I've never had training in this field, Uh, but what I try to do is I try to identify with him and try to put myself in his shoes and I'm just trying to, um, basically do trial and errors when something works with him, I continue doing that." (E5)

Additionally, she raised a concern about the lack of structure in her school, which lead her to work based on her own intuition. The following are two quotations from E5 on this point:

"Yes, but this is out of my own, uh, what my own, uh, care, not from school. Yeah. And intuition." (E5)

"Um, just not being able, I don't have a structure, so whatever I'm doing is out of goodwill. I don't know whether this would be beneficial for him." !" (E5).

On a similar note, E6 stated:

"Just trying based on my own instincts I guess you could say. I've done some self-learning." *(E6)*

When it comes to identification based on personal **instincts/assumptions**, there was a clear pattern observed in the majority of participants' responses. Indeed four out of six participants

responded that they, by some means, identified their students based on their own assumptions or beliefs. Interestingly, this percentage was much higher than those who mentioned clear identification processes or tools within their schools. To illuminate this, Table 5.5 displays the responses of participants who referred to their own judgments for identification of both students' giftedness as well as autism.

Table 5. 5 Identification of students using own judgement

Participant	Response
E3	*"Yeah, he was never identified as gifted. It's just something that I observed".*
E6	*I am using my own judgement often in this case as I have not received any official guidelines or training on how to do this*
E5	*No, to be honest, I've uh, this is my first time experiencing this with, if my student I'm not even sure if he's autistic, uh, it's just an assumption that I've made.*
E2	*So honestly, I don't really have, I mean I haven't used, you know, proper tools. I think I'm just kind of going with my feeling and my gut feeling and so it's not really, it's kind of like my own kind of diagnosis.*

5.2.1.4 Insufficient training (From interviews data)

Several statements made by educators during the interviews indicated both insufficient training and a lack of awareness about the twice-exceptional student, in those diagnosed with ASD. In fact, educators frequently mentioned the lack of training received in this area specifically, and the inadequate guidance received from superior members of staff or school management on how to support such exceptional students. Three participants mentioned they had engaged in self-learning as a personal initiative to better understand the students they are working with. Both stated that this was done through a personal motive rather than a criterion from the school. E5 for instance stated:

"Because of my student and class, I want to help him. Um, I've done self-learning by watching YouTube videos and whatever I can find. Uh, and uh, yeah, that that's, that's basically it, I, I

don't, I don't know what the recommended trainings are I should be taking or can take to be honest in this region." (E5)

While the other participants stated:

"No, from school aaah there's no training but in between I did a I did RBT in between I did because I want to know much more about autism, for this child I actually I did this RBT course" *(*E4)

Even in autism, I have attended trainings on my own, but it's not part of the school trainings we receive. (E6)

When asked about the official training received in school about gifted provision, as well as provisions for autistic learners, responses demonstrated a clear lack of training in both areas.

Thereafter, when educators were asked about their suggestions about possible enhancements of educational programs for gifted students with ASD, most of them mentioned a dire need for teacher training and increased awareness. Five out of six participants expressed the need for training in understanding how to both identify as well as support this group of students in school. Participants mentioned that this training should be delivered to all staff rather than only those working directly with the student. The other participants agreed on the training needs in school and the importance of all staff and educators needing to be aware of the identification and planning for this exceptional group of learners.

5.2.1.5 Insufficient training (From survey data)

To gain a more detailed understanding about the training educators have received on provision for gifted students with ASD, participants who responded to the survey were asked to select the areas in which they have received an official training in school. Findings retrieved imply

that the larger portion of educators (67%) have received training on provision for students with ASD, while training on gifted students' provision was only 28%. Training received by educators on provision for gifted students with ASD was merely 19%, representing a relatively low percentage of participants. Results are presented in Figure 5.2.
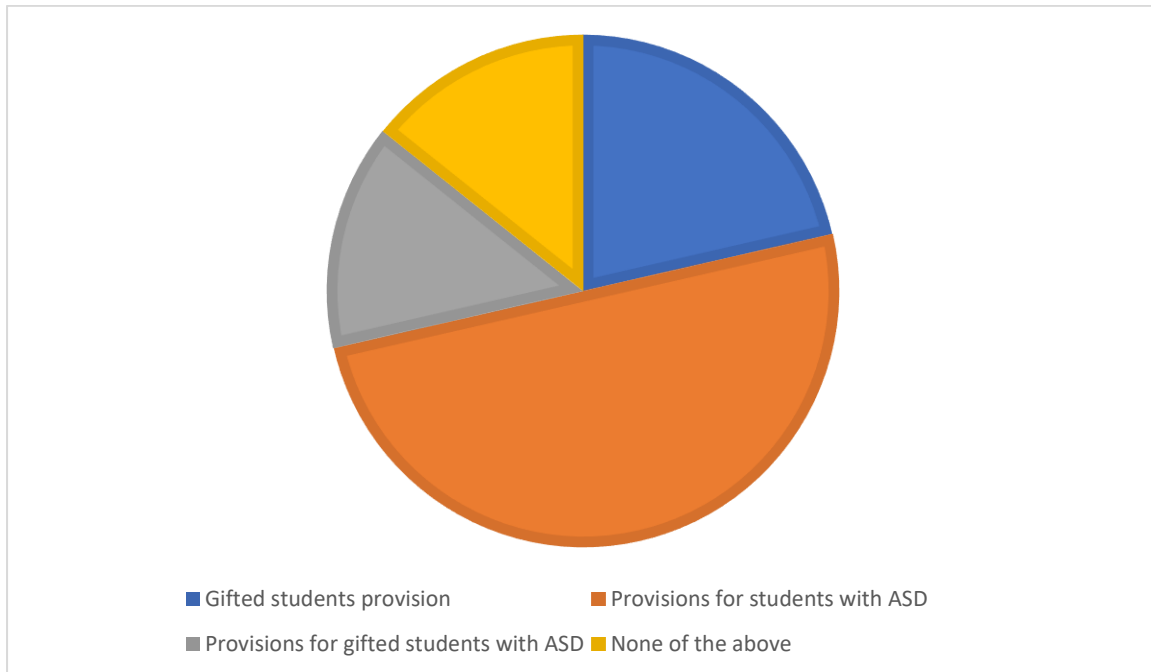
Figure 5. 2 Training received by educators on inclusive education and gifted provision

Ultimately, educators' responses indicated a significant need for professional development and awareness of both gifted education and special education, as well as training on twice-exceptional students.

5.2.2 Differentiation and Student Support

In terms of differentiation and individualised support offered to students, the findings reveal four main types of support systems implemented by educators to varying extents with this group of learners. These are: (a) Providing additional tasks, (b) Individualised Education Plans (IEPs), (c) Curriculum Differentiation/Adaptation, and (d) Individualised support. Each one is presented separately in this section.

5.2.2.1 Additional Tasks (from interview data)

As per the findings, differentiation and individualized student support include extra worksheets in the classroom, additional tasks, and extended student responsibilities.

Most findings suggest that students are given additional worksheets or tasks as they typically complete the assigned activity earlier than their classmates. Despite this, many participants commonly mentioned that the additional tasks or worksheets offered were not actually in accordance with the students' higher abilities, but rather, they were additional worksheets based on the general level of the classroom. Given that this unique target group of students may often exhibit behavioural challenges (Lakin & Wai, 2020; Dunlap, et al., 2010), some educators mentioned that additional tasks were offered to these students as a strategy to avoid any behavioural difficulties that often disrupt the rest of the class. One participant, E6 (English teacher) stated that:

"If he is not occupied with any other tasks, he will start showing some challenging behaviours like making silly sounds and bothering the other students. That's why I have to keep him busy with other tasks – to avoid behaviors."

Some of these behavioural disruptions in the classroom have been addressed by the students interviewed for this research, and they can be attributed to students' feelings of boredom and insufficient challenges. When it comes to the additional tasks or assignments provided to students, participants had different responses when addressing the rationale for assigning such tasks. The following are example quotations from the interviews on this matter:

"I mean, what I try to do as, you know, just as a teacher of the student. I also don't know any other students. He's the only student I know that has autism, and I believe is gifted, I just tried to give him extra problems to solve, and because I see that he also enjoys it. So, I try to give him like, extra problems and questions to solve" (E2 – Math teacher)

"I ask teachers, maybe sometimes to give him some extra worksheets or extra activities for reading but it is based on my opinion only" (E1 – SEN teacher)

As apparent from the above-mentioned responses of educators, there is a significant difference in the means of support for these twice-exceptional students. Educators have discussed

different ways of supporting their students that are based on their personal judgements and perspectives about the 'right' way of supporting such students. Although the responses differed in the ways in which educators are working, all participants shared a common belief that this is based on their own personal efforts, experiences, and knowledge.

5.2.2.2 Individualised Education Plans (from interview data)

To explore the various areas of individualised support these twice-exceptional students are receiving, educators were initially asked about the Individualised Education Plans (IEPs) for students that they are currently teaching or have previously taught. To ensure consistency in the participant responses, the term "IEP" was explained before respondents provided their answers. Participants were then asked about the various sections or areas of the individualised plan and what exactly it entailed. The outcomes of this question were consistent with many of the survey responses collected, indicating a significantly higher degree of support for students with autism, but not for students exhibiting giftedness. In fact, 67% of participants mentioned that the IEPs for their students covered many of the areas in which autistic students were facing challenges (e.g., behavioural challenges, cognitive deviance, social difficulties). Meanwhile, none of the participants (0%) mentioned any type of support provided for gifted students in the IEPs. This, in line with the survey findings, indicates a significant discrepancy in the support and provision offered to gifted students compared to autistic students, let alone a gifted student with ASD. One interesting observation is that all the educators interviewed in this study were aware of their students' giftedness and yet did not mention any enrichment activities (or other support) for those students. Based on these results, it could be concluded that a large portion of schools and educators are accommodating to the needs of the 'autistic characteristics' while overlooking the gifted traits in such students. One may ask if this links back to educators' knowledge and abilities to implement such practices for this unique target group or if other factors play a role in developing the right provisions for these twice-exceptional students. This point is discussed further in Chapter 6.

When asked about the procedure to compile the IEP, only one participant (E1 – SEN teacher) described a clear process that implied a systematic structure to the IEP process. She mentioned the assessment leading to setting a plan in place that is then shared with all other educators and

subsequently reviewed every semester. Despite mentioning that there is no systematic plan in place to enhance or work on the student's giftedness, E1 (SEN teacher) explained that teachers are informed about students' abilities and talents after the assessment is complete. This is done on a verbal basis rather than being officially documented in the IEP. When explaining this, E1 said:

"*And after the assessment, we are doing like an action plan in this area, and we can inform the teachers and anyone dealing with these students about his talent and how we can utilize this talent*"

This was the only statement from respondents that somewhat referred to covering the needs of gifted students, although they may be on the autism spectrum. Again, this discussion continues in Chapter 6. Now, when asked the same question ('Do you have an individualised plan for your gifted student with ASD?'), two participants out of six answered that the student does not have an IEP or any form of an individualised plan. The response of E4 (Head of Inclusion) was as follows:

"He doesn't have an IEP for him because he's perfectly ok for the academic level"

This statement raises several questions about the knowledgeableness of the IEP itself rather than only the knowledge or awareness of meeting the needs of twice-exceptional students. IEPs aim to cover a wide range of developmental areas including academic, social, behavioural, and cognitive functions (Baum & Novak, 2010; Goodman & Bond, 1993); however, the above statement implies that IEPs would only cover academic areas of support. This response suggests that the student does not need an IEP, although the respondent had clearly mentioned some other challenges that the student was facing, such as attention deficits and other behavioural issues. Despite this, it was deemed by the school's Inclusion Department that the student would not require an IEP because he is doing 'perfectly well' at the given academic level, overlooking other areas of weaknesses in which the student may require different types of support. Moreover, this implies that no enrichment is in place for this student on an academic level as the student is 'doing well enough'. To conclude, four out of six participants mentioned that there was an IEP in place for the student, from which all agreed that the content focused only on the 'autistic' traits, leaving out the student's giftedness. No participants mentioned

giftedness or areas of strengths in the IEP while two participants mentioned not having an IEP in place at all.

5.2.2.3 Curriculum Differentiation/Adaptation (data from interviews)

When asked about curriculum differentiation and adaptation, participants' responses suggest a significant difference in the type of modifications offered for twice-exceptional learners. Yet, all responses share one aspect in common, which was an insufficient mentioning of giftedness in curriculum differentiation. Only one out of six participants mentioned that there was a planned curriculum adaptation in place for his gifted learner with ASD in the school, yet when examining the interview in-depth, the response suggests that there is a clearly planned curriculum adaptation for autistic students only, but not for the gifted. Participant E3 (SEN teacher) further explained that the curriculum was developed between the students' teachers and the inclusion department and was drafted mainly based on the student's areas of weaknesses rather than strengths. E3's response to this was:

"*For autism, we offer the curriculum modifications and for the regular teachers, they offer differentiation which we can see through the lesson plans.*"

When asked if the students' giftedness was considered in the curriculum adaptations, E3 responded:

"*I think for students who are ahead of their class, I think the subject teachers they offer like a different activity for them as well. So, for slow Learners and fast Learners, they offer different activities, but not specifically for gifted*"

Moreover, E3 mentioned three levels of differentiation that are being implemented in the general classroom - one for lower-achieving students that require additional support, one for average-achievers, and one for high-achievers, with gifted students being considered in the category of 'high-achievers'. In line with the response of E3, also affirming the general differentiation that takes place inside the classroom regardless of the diagnosis or identification of students, E4 (Head of Inclusion) also stated:

"Curriculum modifications should be there for all, for all students, I mean in a normal class itself, they're modifying them, sorry, differentiating the students and giving them different things."

Although most responses from the interviews were similar, stating that the curriculum is not modified to accommodate for students' giftedness, many participants mentioned providing some level of additional or special work that differs from rest of the students. Indeed, all participants pointed out that this was done on an individual basis from the educator's own initiative rather than following a certain curriculum tailored to that specific learner.

In summary, educators' responses suggested that curriculums were not individualised nor modified based on students' abilities or areas of need. Instead, educators would provide students with additional and somewhat different work from the rest of the students on a day-to-day basis (rather than a pre-planned curriculum). Additionally, students' abilities and giftedness were not mentioned by any participant regarding curriculum adaptation; and responses indicate that differentiation was based mainly on the 'autism traits' rather than students' giftedness.

5.2.2.4 Individualised Support (data from survey)

In an effort to explore the different provisions offered by schools for this unique target population, participants were asked to select the areas of support provided to 'gifted students alone' versus 'students with ASD alone'. Figure 5.3 below demonstrates a comparison of the provisions offered by schools for gifted students versus students with ASD alone.
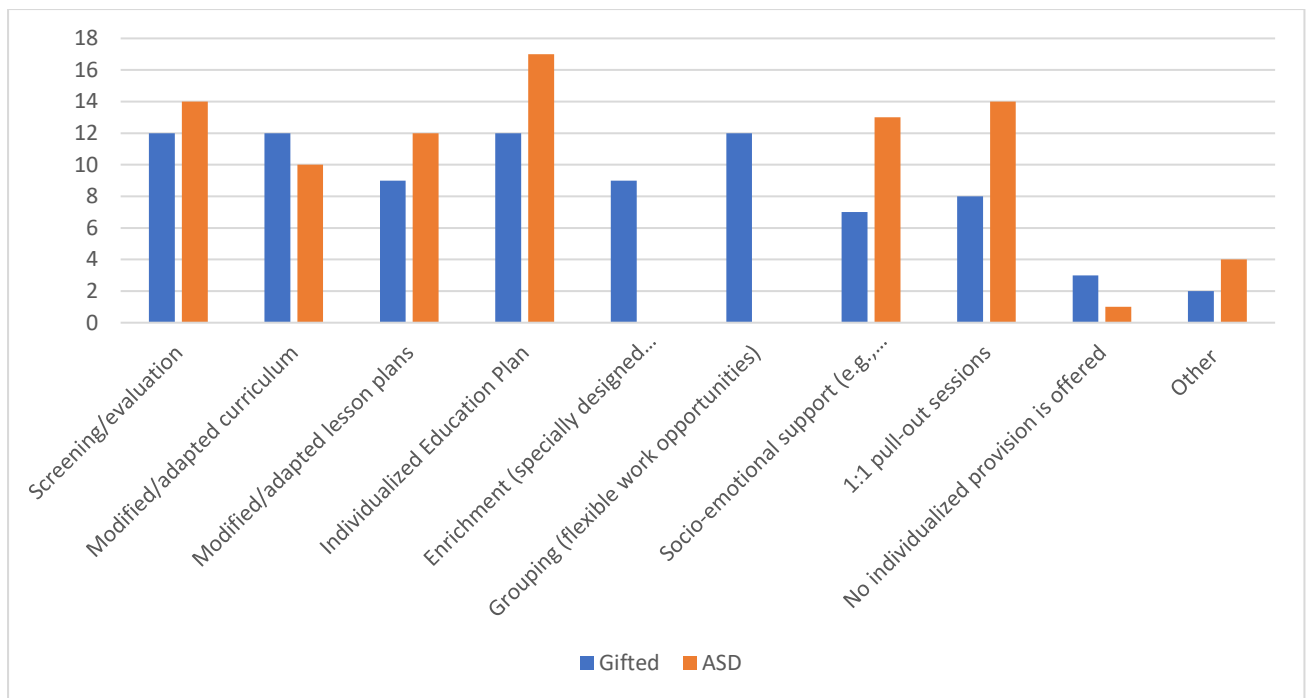
Figure 5. 3 Comparison of provisions offered for gifted students vs students with ASD

Results reveal that provision offered to students with ASD is statistically higher overall than those offered to gifted students. One evident demonstration of this is the Individualised Education Plan where 17 participants have one in place for students with ASD, and 12 are in place for gifted students. Another apparent difference between the provisions offered for both groups is the socio-emotional support; 13 participants indicated that this would be available for students with ASD, and 7 indicated gifted students would receive support – this is nearly double the number for ASD students. Similarly, access to 1:1 pull-out sessions indicated a significant variation between both groups – 8 for gifted students and 14 for ASD students. Another interesting finding can be observed in the option "No individualised provision is offered" where this has been selected three times for gifted students yet only once for ASD students.

As seen by these findings, it can be concluded that there are a greater number of opportunities provided for students with ASD than for gifted students. Observing these significant discrepancies in the numbers between gifted students and students with ASD, one may wonder how gifted students who are also on the autism spectrum will be supported. To explore this, participants were asked to describe through question 20 in the survey *"the type of support you*

offer to students in your current/previous school (in Dubai) who have been identified as gifted with ASD. The findings of this question can be viewed in Table 5.6 below.

Table 5. 6 Type of Support Offered for Gifted Students with ASD

Question 20: Please describe the type of support you offer to students in your current/previous school (in Dubai) who have been identified as gifted with ASD

Response	Number of participants	Percentage of participants
N/A (not available)	11	52%
Enrichment	2	9%
1:1 pull-out sessions	3	14%
Individualized Education Plan (IEP)	3	14%
Modified assignments	1	4%
Other	3	14%

Interestingly, the responses to question 20 reveal an extensive lack of support for twice-exceptional students, who are both identified as gifted and diagnosed with ASD. Furthermore, 52% of participants mentioned that there was no individualised provision being offered to this unique target group. For this specific question, none of the participants mentioned some of the previously selected provisions such as socio-emotional support, screening and evaluation, or modified curriculum. Responses from one specific participant included: Progress tracking, in-class support, and parent/teacher training. Significantly, the comparison in Figure 5.4 demonstrates the differences between the provisions offered for gifted students separately, students with ASD separately, and twice-exceptional students (gifted with ASD).
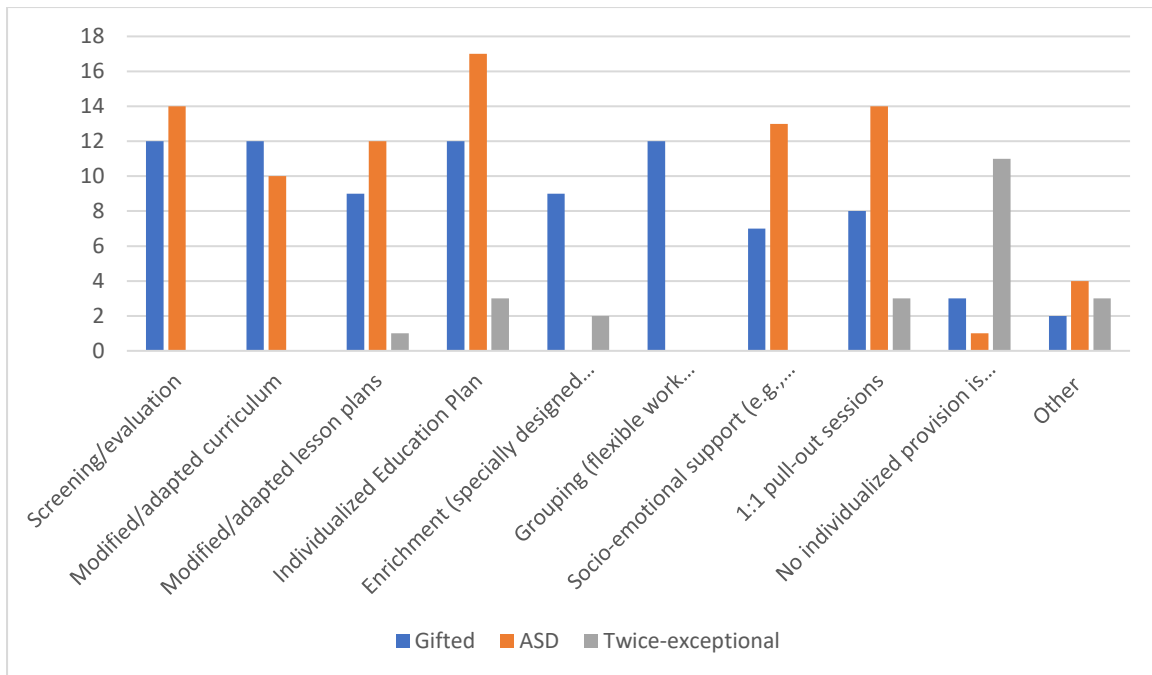
Figure 5. 4 Comparison between provisions offered for gifted, vs ASD, vs twice-exceptional students

In sum, these results demonstrate a significant difference in the individualised provisions offered to students with ASD, gifted students and students who exhibit both characteristics. Findings clearly indicate that students diagnosed with ASD are served the most in the mainstream school setting in comparison with gifted students and twice-exceptional students. Such individualised support systems in place include curriculum modifications, IEPs, and 1:1 support sessions.

5.3 Theme 3: Identification of Gifted Learners with ASD

During the semi-structured interviews, educators were asked about the procedures in place within their current schools to identify gifted students with ASD. Similar to the survey findings, results from the interviews showed a significant difference, whereas some educators mentioned several procedures used for identification, others displayed uncertainty and reported feeling lost in this process. Three out of six participants (50%) referred to a variety of tools used for identification purposes, while the remaining participants (50%) mentioned relying on their own instincts and knowledge for identification of the student. Participants who referred to a clear

identification process used in their school mentioned only one aspect of identification of the twice-exceptional student, i.e., how to identify giftedness, but not autism (or vice versa).

5.3.1 Identification Procedures (data from interviews)

One example of this can be seen in the interview with participant E1. She is an SEN teacher who is currently teaching a gifted student on the autism spectrum (in grade 5). When asked about the procedures to identify giftedness in this student, she referred to depending on external sources (such as teachers or parents) for collecting this information about the student, rather than conducting a formal type of test or assessment with the student directly. Similarly, E3, who previously taught a student who was identified as gifted with ASD stated:

"*So, one thing is I don't think our school has that assessment tool that students can actually show if they have a talent for example in music. We don't have that*"

When asked about how he knew or identified his twice-exceptional student, he mentioned using his own instincts and observations.

As previously mentioned, three out of six participants (50%) referred to a variety of tools used for identification purposes, and one of the most commonly mentioned tools to identify giftedness was the CAT4. CAT4 refers to the Cognitive Abilities Test (Fourth Edition) and is a set of tests developed to support schools in evaluating students' abilities and possible academic potential (Walrath, 2014). Answering the specific procedures used for identification one participant (E4) said:

"*Taking from the CAT4, then sometimes the teachers will comment and also we will use the CAT4 for results for other benchmarks.*"

Another participant, E6 also mentioned using CAT4 as a type of benchmark to evaluate the students' skills and abilities. However, he highlighted difficulties that he is peronally facing in carrying out this test with his student noting the different challenges of conducting the CAT4 on a student who is highly gifted, but also facing other challenges that are in a way concealing

his giftedness. He mentioned some of the social communication challenges of the student in addition to poor attention skills, leaving the student in a situation where he is not able to complete the required task or activity. In response to the question "*what are the identification tools used at your school to identify a student with ASD who may be gifted*?" E6 stated:

"*I usually use the CAT4 and other types of testing to see the level of the child, but that can sometimes be challenging with my student as he is not very responsive to me.*"

Answering the same question, E1 responded by saying:

"*We are actually doing some assessments. We can do tests exams in different areas in Math, Science, English, and Arabic. And that's how we see that this student is gifted*"

The response of E1 differs from other responses that mention specifically using CAT4 as the main identification tool. Despite using specific tests and assessments in various subject areas to evaluate student potential, E1 mentioned that this was used based on teachers' own knowledge of students' abilities or performance. As per the response of E1 on this matter, there is no systematic pattern to be followed when assessing students' abilities, but this is rather based on the teacher's own judgement and how to go about the evaluation process.

5.3.2 Identification Procedures (data from survey)

While examining the findings of identification processes in the schools, results demonstrated a vast discrepancy in terms of both numbers as well as descriptions. When asked about the identification and screening process in schools, findings revealed that merely three participants have a clear identification/screening process for gifted students with ASD (twice-exceptional students) within their schools; whereas twelve participant responses suggest that there is a clear identification/screening process for students with ASD, and ten have an identification/screening process for gifted students. Five participants indicated that the school had none of the above identification processes. This suggests that many schools would have a set identification process for students with ASD alone, and a process for gifted students alone, but no process for the gifted student with ASD. Table 5.7 displays the various responses to question 16.

Table 5. 7 Identification processes in place

Process	Number of responses
Identification/screening process for students with ASD	12
Identification/screening process for gifted students	10
Identification/screening process for gifted students with ASD	3
None of the above	5

In an attempt to explore the identification process and tools used, participants were asked to briefly describe the process for the options selected in the previous question. Four participants did not answer this question at all, while many other responses suggested a certain level of uncertainty or lack of knowledge. Some of these examples are presented in Table 5.8.

Table 5. 8 Responses indicating uncertainty/lack of knowledge

Question 17: Please briefly describe the process for the selected option above (identification/screening process)

Participant	Response
P1	*Honestly, I am not sure we are there yet, but I could be wrong. We work with a SOD consultant, and I know she's introduced a framework that can help with these pieces.*
P2	*Procedures in place for identification.*
P3	*It is taken care of by the non-teaching/ admission officers.*
P4	*There is an evaluation process available at the school.*
P5	*Tests.*

5.3.3 Recognizing Labels (data from interviews)

While exploring the processes and tools in place to identify giftedness in students with ASD or to identify potential ASD characteristics in gifted students, it was interesting to view the way that these twice-exceptional students were not only recognized but also labelled by educators. Many participant responses implied familiarity with ASD features, its characteristics, and challenges, while the uncertainty in knowledge related to the gifted characteristics of the student seemed to be apparent. Respondents frequently referred to students with ASD indicating an understanding of their identification and needs. It seemed that many of the students being taught by the participants have been officially diagnosed with ASD (by a mental health professional), whereas the struggle in identification has been to assess for giftedness in the student. Indeed, on this matter, one participant (E6) said:

"I know that he has autism, we have been informed, but nobody informed me that he is talented."

Speaking about the same student, he (E6) also added:

"I wouldn't know if I would label him as gifted or just a high-achiever"

Further, when asked about differences between gifted vs high-achieving students, E6 clarified that gifted students were natural-born whereas high-achieving students were good at memorising information, making it easier for them to transition to higher levels of knowledge above their grade level. In line with this, another participant (E5) described her grade 5 student by saying:

"Um, he is not very interactive but brilliant at what he does. I mean, his level, uh, could be of a grade, like a sixth or seventh grader."

This again raises the question of whether gifted or high-achievers are truly equivalent by definition or if this is actually a subjective perception that remains ambiguous to many. In this context, E5 also went on to mention other students in her school that she suspects could be gifted although they have not received a 'label' of gifted or talented. In this particular school, there is no systematic process for identifying gifted students, rather it is based on teachers' observations and judgements about what a gifted student is. She stated:

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"Well, there is one or two students who we could classify as gifted, but, um, they haven't officially been, uh, diagnosed in, in terms in the, like in the school."

Significantly, it seems from the responses of participants that there is an evident challenge in not only identifying giftedness in autistic students but also an issue in defining what the terminology 'gifted' itself really means. Moreover, responses from the interviews also implied a lack of accurate identification procedures and tools used in schools to assess autistic students who may exhibit giftedness in a variety of domains. In fact, 67% of respondents mentioned that they often had to use their own judgements to identify giftedness in these students rather than following systematic procedures or tools set out by the school. The other respondents who referred to specific procedures or tools used for the identification of giftedness in these students also hinted at challenges they face when aiming to carry out these evaluations of the students. Specifically, one participant mentioned the difficulty in having a student sit down and focus for an extended period of time when conducting an aptitude test, and this lack of focus may consequently impact the outcome of the test in a negative manner (although the student is exhibiting traits of giftedness). This goes in line with some of the survey responses that suggest the challenges of gifted students with ASD are in relation to attention-deficit issues (see table 5.3).

5.3.4 Recognising labels (data from survey)

When asked about the awareness and identification of gifted students with ASD in the classroom, results from the survey indicated different interpretations. The questions included:

- How would you define a gifted student with ASD?
- Do you teach any student identified as gifted with ASD?
- Have you been made aware of the gifted students with ASD in your school/class?
- Do you think that you may have come across a gifted student with ASD who has not been appropriately identified?

These questions were included in the survey as it was deemed important to explore the awareness and knowledge of educators about the definition and identification of gifted students with ASD, before asking specifically about the direct identification process. One may ask how educators will identify such students, let alone offer the appropriate support if they do not

possess sufficient knowledge about the key characteristics of this target group of students. Questions that aimed to explore the identification process itself included:

- Select the identification processes that are currently in place in your school.
- Please briefly describe the process for the selected option above.

Responses to the first question "How would you define a gifted student with ASD?" demonstrated a discrepancy of knowledge on the part of participants. Many responses were based on personal judgements or assessments and descriptions rather than a formal definition. Some examples are presented in Table 5.9:

Table 5. 9 Responses based on Personal Judgements and Descriptions

Survey Question 9: How would you define a gifted student with ASD?

Participant	Response
P1	*"Hyperactive, good at academics"*
P2	*"Interestingly curious"*
P3	*"Child with endless possibilities"*
P4	*"Talented student who needs an opportunity to shine"*
P5	*"Double special"*
P6	*"Intelligent"*
P7	*"Specially talented children who are completely innocent in their doings and thinking"*
P8	*"Extremely intelligent in cases I came across"*

Other responses that were based on a more 'formal' definition are presented in Table 5.10.

Table 5. 10 Responses based on Scientific/Text-book Definition

Survey Question 9: How would you define a gifted student with ASD?

Participant	Response
P09	*"Students with exceptional abilities in the skills and areas of academics"*
P10	*"Gifted but happens to have ASD, so is entitled to G&T provision the same as other students"*
P11	*"Twice exceptional"*
P12	*"A twice exceptional child with a gift in an area of learning."*
P13	*"A student who is diagnosed with ASD who has certain features that function 2 grades higher than current levels"*
P14	*"A child with exceptional abilities but struggle to communicate"*
P15	*"1) has a diagnosis of ASD and 2) has been identified as having exceptional performance/ability in one or more areas"*
P16	*"A student with special abilities in certain fields with a lack of social skills due to disabilities"*
P17	*"A person whose higher-order thinking skills far exceeds their age group, with a heightened sensitivity to environmental stimuli"*

One participant wrote, *"Honestly, I don't define at all. Those who are 'gifted' need something else or something different"*. The remaining three participants did not answer this question. Ultimately, eight participants answered this question based on their personal descriptions, eight answered based on a somewhat formal description, one offered an alternative response, and three did not respond at all.

5.3.5 Student differentiation and support (from student data)

When students were asked about any differentiation that they would receive in their curriculum, lesson plans, or overall education, all their responses suggested the same finding, namely extra tasks and worksheets were given in the classroom. All students' responses indicated that there was no official differentiation in their curriculum, but rather teachers would provide them with additional tasks to complete within the classroom. These tasks were offered depending on the speed at which the student completes the work. This finding goes in line with the responses of the majority of educators interviewed, who also explained that these learners would often be given additional tasks as they typically complete their academic tasks earlier than their peers. Despite this common agreement between students and educators that this group of learners is typically able to complete their assigned tasks quicker than others, responses from both groups verify the fact that no official differentiation is on offer for this group of learners. One student participant (S4) for instance stated:

"Nobody really told me anything about that, like my exams and everything is the same as everyone else. My teacher usually tells me I'm smarter than my friends, but I don't really get anything special for my work."

Several responses from the students interviewed are similar, clearly demonstrating the same type of support and provision offered. Table 5.11 demonstrates the responses from students that indicate the additional tasks given by teachers to students in response to their early completion of tasks.

Table 5. 11 Responses from students on receiving additional tasks

Participant	Response
S2	*"She will give me extra worksheets to work on, sometimes she will sit with me and ask me questions that are different from the other students in class"*
S2	*"When I finish the worksheets faster, my teacher gives me extra tasks to do"*
S3	*"No, my curriculum was the same, but I would do more"*
S1	*"It's not like I am doing something different and much more different. I like psychology. I'm doing the same work as them, but much faster. And the teacher will have to think of something, out of, you know, out of her own mind to, for me to do. "*
S4	*If I finish faster than my friends, she will give me the class responsibility to collect the papers and help her in marking.*

One further notion that most students commonly mentioned is the extent of challenges experienced with these additional tasks offered upon the completion of other assignments. Despite being given extra worksheets and assignments, students' responses revealed genuine concern about the complexity of such assignments. Most students explained that although given *additional* worksheets, they do not necessarily feel challenged. Student S3 for instance said:

"*I would get tasks like writing longer sentences or marking people like explaining to the class what the next words are in exams or like in spelling bees because I would be finishing the task first. But it didn't really feel difficult for me or like I'm learning anything new*".

S1 shared a similar concern saying:

"*And in science, there's sets and the classes have sets, I do the same work as everyone else, then I receive some extra worksheets that are quite easy for me.*"

To explore this in further detail, students were asked to provide details on these additional tasks that were assigned by their teachers. The following was the response of S1 when explaining an exam that he had finished earlier than his peers:

"So, I finished everything. I got pretty much everything right except for one thing I corrected after I realized the answer immediately and after the teacher just said create a little quiz for us to do but we never did the quiz". (S1)

Similarly, S4 gave a similar answer in terms of the type of additional work assigned by the teacher:

"The teacher asks me to gather the worksheets and exams of the students and then help her to correct them." (S4)

Evidently, both responses reveal that these exceptional learners are typically given the task of marking and creating or supporting in exams and formative assessments. To verify this, S3 also provided a similar response to this question by saying:

"*I would get tasks like writing longer sentences or marking people like explaining to the class what the next words are in exams or like in spelling bees*". (S3)

Notably, and in line with the responses of educators, students also mentioned being offered additional tasks and assignments as a main differentiation from their peers. However, unlike educators, students highlighted the extent of challenges they experienced with such additional tasks, which often time did not feel sufficiently challenging.

5.4 RQ 2: Student data

While RQ1 examined the provisions on offer for gifted learners with ASD, Research Question 2 (RQ2) aimed to explore the perception of such provisions in this group of learners. To garner data for this question, gifted students with ASD participated in a semi-structured interview in which their opinions and viewpoints were shared. The results revealed that students struggled in many aspects of school, and that their school experiences were mainly negative. In this section, findings of research question 2 are presented through the following themes:

- Student school experiences
  - Over-challenged or Under-challenged?
  - Negative School Experiences
- Student challenges

5.4.1 Theme 1: Student school experiences

To begin with, when asked about students' emotions about their school experiences, the responses revealed a variety of emotions in different areas. Student participants were first asked about their emotions toward the current provisions offered. As most students commonly shared that the individualised work they were given is essentially additional assignments, this was the first point addressed. When asked the question "*how do you feel about being given additional worksheets or tasks different from your classmates*?" students answered the following:

"*I don't feel annoyed. I, I act, **I do sometimes feel happy**. Like I feel happy that, oh, I was able to finish early, and you know, the means, I know that **I'm improving or that I've mastered it**, you know, I've mastered the topic.*" (S1)

"***I feel good about having extra worksheets**, I feel like a superstar, my teacher always tells me that I am different and very smart, so it makes me happy when I have more difficult questions than my friends.*" (S2)

"*When I get additional tasks, **I feel like I'm challenging myself** and I feel like sometimes **I feel like I'm better** than everyone else because everyone else is like slow at things. It's always me that's finishing first.*" (S3)

*"**I like it.** It makes me think of the subject differently."* (S4)

Despite the fact that some students had raised concerns about the simplicity of these additional tasks offered, all of them exhibited positive feelings towards this type of differentiation in the classroom. Phrases that have been highlighted in bold (in the student responses above) imply such positive emotions. Responses also indicate that some students feel challenged by these additional tasks or feel 'smarter' or 'better' than the rest of the class, nurturing the students' feelings of strength and self-confidence.

When discussing other lived experiences in the school of these learners, responses revealed numerous differences, specifically in the social aspects. While one student felt glad to be in school and have the chance to socialise with peers, others felt the opposite. S1 was the only participant out of four who mentioned positive emotions towards the social experience of school. Despite mentioning the school not being "fun", she stated that socializing at school means that she does not have to be alone. The following is a quotation from S1:

"*I do like school because I see, I socialize more than at home, it's not the same and I'd rather be in school because the environment is different than at home. Even though school is not that fun. But like at least when I socialize, I don't have to be alone. And yeah, it's more fun there.*" (S3)

All students highlighted the importance of encouragement and appreciation in a variety of ways. Two students expressed being appreciated by their teachers/educators, while the other two students felt they experienced little or limited encouragement from the school. Despite this experience, these same students have mentioned being identified as distinguishing from their peers by their teachers, they both appeared to conclude that teachers have stopped/decreased this type of encouragement for them due to their constant and consistent high-achieving performance in certain subjects. S1 mentioned this when saying "*but usually it's more for the students who may be progressing*", meaning that appreciation rewards are offered to students who progress rather than continually perform on the same high level. S3 also indicated the same in her statement "*I'm usually the teacher's favourite student but they don't really give me*

any appreciation rewards or anything like that". This can be connected back to the same point, emphasising the "favourite student" because of her continuous high performance. Other experiences and emotions expressed by students in terms of the provisions offered reveal anger, frustration, and low self-confidence. Specifically, when finishing tasks earlier than peers, students have expressed emotions of boredom and irritation. S1 and S2 for instance stated:

"*Sometimes in some subjects when I finish faster, the teacher will ask me to sit and wait for the other students. I get bored in these times because I'm not doing anything.*" (S2)

"*Yeah, and I guess the teacher just asked me to do the quiz to keep me up to date or just to keep me occupied.*" (S1)

5.4.1.2 Over-challenged or Under-challenged?

Regarding **challenges** faced by the students, responses demonstrated that students at times feel under-challenged and other times over-challenged. When they were asked about the complexity of the work tasks they are given, most students agreed that they are not feeling understood by their teachers in terms of their abilities. The following are some of the students' responses to the question "*how do you feel about the work and assignments that you are given in school?*"

Table 5. 12 Students' responses to the question "how do you feel about the work and assignments that you are given in school?"

Participant	Response
S3	*"No, it's not enough, I would like more challenges."*
S4	*"I like to be challenged with extra work, but I sometimes feel like the worksheets are too easy and sometimes too difficult."*
S1	*"The teacher says to me, I've to do it. I don't ask any questions about it. And I just do it i.e., I get it done. And I show the teacher and miss that I've finished, and she's like, okay, that's good to know."*
S2	*"My teacher thinks I can do well in all subjects because I have high grades in English and Math, but then she gives me really difficult tasks in science also and it's not easy for me."*

Overall, it appears that there is a variety of emotions experienced by students toward the type of work that they are offered in school. Two students felt glad to be challenged above their level in areas where they are gifted but also experienced being over-challenged in other areas in which they are not as competent. One response that may represent other students' experiences is S2's statement about the assumption of his teacher, that he would be gifted in *all* academic subjects because he exhibits giftedness in *most* of them. This presumption of educators has been implied by the students in various ways throughout the interviews. S3 for instance stated:

"I would like for teachers to not separate people depending on how good they are at classes, because in our school, we have different classes, depending on how good we are in maths, and this is challenging. A lot of people, making them think that they are less smart than others because of this"

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Despite that this student has been labelled 'a favourite student' amongst teachers, she demonstrated struggles with other subjects making her feel 'less smart'. This may also be linked back to the previously discussed notion of students being over-challenged in certain areas in which they do not possess the same giftedness perceived by teachers. This observation has been discussed by Moon (2009) who argues that gifted students who exhibit talent in a certain area are often perceived by educators as gifted in more areas in which they do not truly possess the same abilities. It may be observed in the student quotations and responses that students experience a similar type of judgment and assumptions by their teachers, being placed in groups or class categories in which they do not really belong. Gifted students on their own are a complex group of students for educators to care for (VanTassel-Baska and Stambaugh, 2005; Gentryet et al., 2002), adding a further layer of complexity for educators, the students examined in this study are gifted students *with ASD*, meaning that educators also must accommodate the students' traits of ASD (in terms of needs). One may argue that it is only natural and anticipated in this case for students to be over-challenged and under-challenged, as a result of their two dimensions of giftedness and ASD (Gelbar et al., 2022; McCoach et al., 2004). Figure 5.5 demonstrates the two co-existing traits that lead to educators' challenges in setting the appropriate level of challenge for the student.

Gifted

- High achiever
  - Curious
  - Focused
  - Self-driven
- Asks questions

ASD

- Social difficulties
  - Attention-span
  - Sensory issues
  - Difficulty in comprehending abstract concepts

The twice exceptional student

Over-challenged by teachers

Under-challenged by teachers
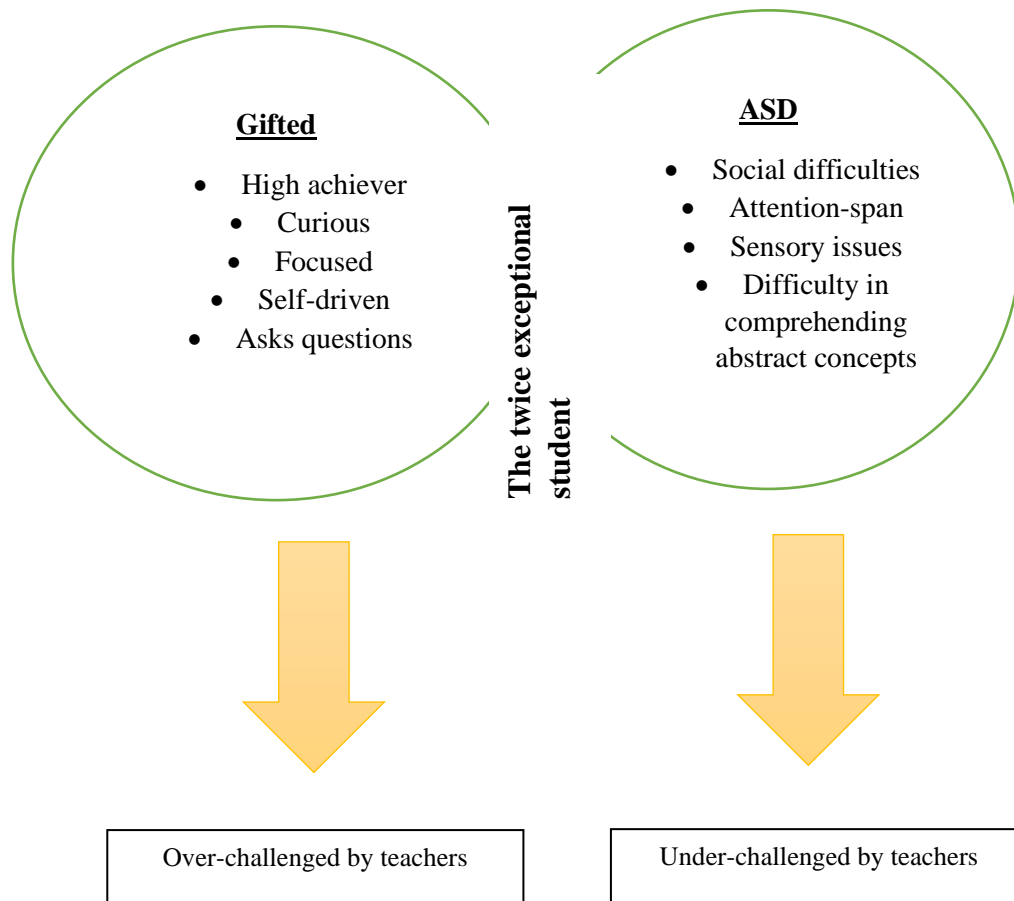
Figure 5. 5 Co-existing traits of autism and giftedness leading to either being over-challenged or under-challenged.

5.4.1.3 Negative School Experiences

A frequently recurrent theme from the students' interviews was the negative emotions or scenarios experienced by these learners in school. All students expressed certain negative emotions or experiences that are often a result of misunderstanding social cues, either from other students' perspective or their teachers'. Some students also expressed negative emotions triggered by the challenges in developing friendships or being understood by peers. Overall, students' emotions of anxiety expressed during the interviews could be associated with: (a) Social challenges in developing/maintaining friendships, (b) Academic difficulties in certain areas/subjects, and (c) Teachers' inability to understand the student's nature.

Social challenges appeared to be a significant factor impacting students' experiences in school. One student who took part in this study (S4) described his negative emotions that are triggered by the pressure of socializing with other peers, and another student (S2) expressed emotions of loneliness due to his challenges to develop friendships in school as a result of not being understood by others. In terms of academic difficulties, three out of four participants expressed feelings of anxiety due to the pressure of exam preparations as well as class differentiation based on students' abilities. Finally, one remarkable and notable finding is the negative emotions experienced by this group of learners due to teachers' inability to fully comprehend the nature of the student. Both students who highlighted this concern (S1 and S2) shared in common their difficulty with maintaining eye contact with others due to their autism. As a result of this, both students experienced getting into trouble with teachers for appearing "rude" or not acting as they should. In summary, Figure 5.6 depicts the negative feelings experienced in school as described by students in the interviews.

Social interaction challenges	• *I don't like school, I would rather work online because I always get so **annoyed** when my teachers are making me play in groups. (S4)* • *I sometimes **feel lonely** because I don't have many friends in school. The other ones don't understand me very much. (S2)*
Academic/exam preparations	• *Since you're like freaking out about it, which made me really **anxious too**. And then in that test, I ended up scoring the highest in my class. (S2)* • *I remember I did not revise as much as I wanted to. I was just hoping to get a few days in only go one day and a few hours and I was that sick like I was like **really anxious (S1)*** • *We have different classes, depending on how good we are in maths, and this is challenging. A lot of people, **making them think that they are less smart** than others because of this (S3)*
Teachers' inability to understand student's nature	• *I was trying to tell like will miss miss miss and I was trying to say that I had a problem and that's why I'm not looking at her but I wasn't able to get it out and I just said I'm sorry, it won't happen again. So sometimes when I feel I'm like, when I'm in a bad situation and I feel really uncomfortable, I don't look at teachers (S1)* • *Yes, one time she was asking me to look into her eyes when she is speaking to me and I got very … like sad when she said that because I felt like I couldn't breathe. (S2)*

Figure 5. 6 A summary of the negative school feelings expressed by students

Bullying/Social Exclusion

Another theme that several student participants expressed in common was their experiences of being bullied and excluded in the classroom or within their group of peers. Two students referred to their exposure to bullying as a direct result of their 'smartness' or high-achieving performance in class. Both S1 and S4 explained that classmates would make fun of them or utter cruel comments as they would answer questions 'smartly' in class, or generally perform well on any given task. The following statements were made by S1 and S4 about this matter:

*"Like sometimes **I get picked on** for being really good at class, you know. I mean, I do get sometimes picked by my friends and **excluded** and as I do get, I do get excluded sometimes and they may make like, you know, like other than like making comments on sometimes not just me, but my family members or, you know, something like that"* (S1)

*"It's always when I say the right answers in class, the **other students start to make fun of me**. They call me a nerd... And uhh... Things like that. Just because I can usually answer the questions fast"* (S4).

On a related but slightly different note, social exclusion was experienced by three participants and expressed in the following statements:

"All the students in my class like to play sports and I don't like sports. The students in my class play video games like me, but they don't play them with me." (S2)

"I have friends in school, sometimes I just feel that they don't understand me." (S3)

*"I do get sometimes picked by my friends and **excluded** and as I do get, I do get excluded sometimes".* (S1)

5.4.2 Theme 5: Student Challenges

An important and apparent theme that developed from the student interviews was 'Teacher-Student relations'. The findings varied between students' responses in terms of their perception of teachers' attitudes, whereas one response demonstrated positive teacher-student interaction, the rest implied challenges in interactions between the student and teacher. These responses implied insufficient awareness of teachers' understanding of student needs and management of challenging behaviors. One evident example of this can be observed in the quotation of S1:

"I had a personal diagnosis. I believe the teacher used to think because, like, the way I acted she just said that I had an attitude, you know, she thought I actually had an attitude like, you know, and that I was a rude student, but she didn't know." (S1)

This statement by S1 supports the argument of Sisk (2013) who explained that gifted students with ASD are often described as 'rude students' due to their inquisitive nature. Due to their

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curiosity and at times their fixation on correctness or 'rightness' students may act in ways that are not comprehendible to those around them (Kennedy & Banks, 2011). This can be observed in some of the students' interviews in which they have expressed feelings of being misunderstood by their teachers. Some of these statements are as follows:

"*Like I remember last week on Monday, I had an issue with the teacher where she shouted at me for not looking at her. So sometimes when I feel, I'm like, when I'm in a bad situation I feel really uncomfortable.*" (S1)

"*My teacher is always dealing with me like I don't know how to do anything, she keeps telling me to sit quietly, but she doesn't know that it is hard for me to do that and focus.*" (S4)

"*My class teacher is also very nice to me, but sometimes when I'm angry, she gets angry with me*" (S2)

"*Yeah, teachers would call me out more because I was a class favourite even though it's not what I wanted.*" (S3)

Hutchens & Morelock (2021) argued that due to their exceptional nature of being extremely gifted but also severely 'impaired', these gifted students with ASD are often misdirected and misplaced in the school setting specifically. This claim is supported by other scholars (Rubenstein et al., 2015; Kennedy & Banks, 2011) and has been observed in students' interviews in this study. As evident in the above student extracts, students expressed emotions of somehow being misunderstood by teachers, and their responses indicated an evident need for teachers to better understand student abilities, weaknesses, and requirements. Due to their complex nature, this group of learners seems too often perceived by educators as either extremely gifted or extremely 'disabled'. One example of teachers' perception of the student being 'too able' was apparent in the S1 statement below:

"*I remember when I was in kindergarten, my, I don't know if mom told this story, but my principal said that like there was nothing for me to learn.*" (S1)

The above quotation suggests there is an insufficient understanding of students' needs as the principal perceived the student as too advanced to learn at the KG level. She did not account for the students' other areas of needs, such as social communication skills as part of their

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learning. On the contrary, S2 expressed the opposite, signifying that teachers typically focus on his autism and weaknesses rather than considering his strengths and gifts. He stated:

"I wish that all my teachers would know what I can do." (S2)

Figure 5.7 demonstrates the keywords that indicate areas of challenges for students and a lack of understanding from educators.

Student Interview Extracts	Implied Challenges
"She shouted at me for not looking at her"	○ *Social challenges* • Student difficulty in making eye contact. • Teacher difficulty in understanding the social nature of student.
" My teacher is always dealing with me like I don't know how to do anything"	• *Emotional/Attention* • Student emotions of feeling incapable • Student not feeling understood • Teacher's difficulty in understanding the nature of student
"She doesn't know that it is hard for me to do that and focus"	
"When I'm angry she gets angry with me"	• *Behavioural Challenges* • Teacher's difficulty in managing students' anger and behavior.
"Yeah, teachers would call me out more because I was a class favourite even though it's not what I wanted"	• *Student needs* • Teacher's difficulty in understanding what students want/need.

Figure 5. 7 Areas of challenges for students and a lack of understanding from educators

The inadequate understanding of these twice-exceptional students may often lead to poor student-teacher relations as a result of a misunderstanding, miscommunication, and frustration from both ends (Trail, 2021; Gierczyk & Hornby, 2021; Ronksley-Pavia & Townend, 2017; Gentry et al., 2002). Looking at the above statements in Figure 5.7, it can be argued that the

teachers' attitude and interaction with the student may possibly be linked to this insufficient understanding of the student's behaviors and mind-sets. This point is discussed in further detail in Chapter 6.

In summary, students expressed challenges in two major areas of their school experiences: *social challenges and academic challenges*. In terms of the social challenges, many participants expressed difficulties in developing and maintaining friendships as well as being understood by their classmates and teachers. The academic challenges revolved around certain subjects that were difficult to comprehend.

5.5 Student Data (RQ3 Themes)

The purpose of Research Question 3 (RQ3) was to identify students' recommendations about the changes and enhancements which could be made to better meet the needs of gifted learners with ASD. Since no previous studies have been conducted in the UAE representing the 'gifted and autistic' student voice, the findings of this research question are of great importance and significance to the literature. To garner data for this question, gifted students with ASD participated in a semi-structured interview, and the results disclosed two main recommendations suggested by students, namely (1) socio-emotional support and (2) differentiated teaching methods.

5.5.1 Theme 6: Socio-Emotional Support

A recurrent theme that emerged from students' interviews was socio-emotional recommendations. Most students shared similar responses on this matter, suggesting different means to socio-emotional support. Two students (S1 and S3), for instance, mentioned ***counselling*** as the main recommendation that they would like to see improved and increased. While one student (S1) expressed his emotions of feeling supported in his counselling sessions,

another student (S3) expressed her wish to attend counselling or social group sessions in school despite not being told about the existence of this in school. S1 expressed the benefits experienced from attending counselling sessions in school and recommended the continuation of this as a provision offered in school. Specifically, he stated:

"I feel like they should continue what, like I'm doing with like my behavior, like my social counselling, like, you know, going to the teacher and being able to talk to them." (S1)

Similarly, S3 stated:

"Yeah, I would like to go for counselling or social groups in my school, but I don't, I mean it's nothing that someone told me about."

Despite it not being an official provision in school, two other students mentioned ***friendships*** when asked about their recommendations in terms of provision. When asked the question "How do you wish to be supported in your school?" these two students highlighted their need for support in developing and maintaining friendships. This is a notion that has been emphasised by most of the student participants in previous questions as well; evidently, students participating in this research have repeatedly highlighted the social challenges in developing friendships and interacting with peers. For this question specifically, responses by students indicate a need for social support in helping them to make and maintain friendships, as well as a strong sense of self-awareness in terms of their own needs. In fact, both students (S2 and S4) who mentioned developing friendships as a recommendation of support, also expressed their personal challenges and desire for support in this area. S2, for instance, said:

"If I can have the chance to interact in groups, like meet other people and make more friends. Making friends for me has always been difficult."

Meanwhile, S4 stated:

"I want to have more friends. Sometimes I feel like nobody wants to be my friend."

Although not a provision offered in school, both these participants have highlighted the importance of an aspect of support that is often overlooked, yet of great importance for these twice-exceptional learners. As a result of their high abilities and performance, which masks their social challenges in school, many gifted learners with ASD are merged into the mainstream school system with little consideration for their social weaknesses or needs

(Burger-Veltmeijer et al., 2016). It is apparent from the responses of S2 and S4 that social support is recommended and could be presented in the form of teaching social skills or creating social groups. This topic shall be further discussed in Chapter 6.

5.5.2 Teaching Methods

1:1 Support:

Interestingly, two out of four students recommended a 1:1 tutoring type of support by educators. Despite being acknowledged by their teachers for giftedness, participants have expressed challenges in subjects or academic areas that are often overlooked as a result of their high-achieving performance in other areas. Both students agreed that 1:1 direct tutoring from their teachers is not a current provision on offer but would be beneficial for students' academic, as well as cognitive growth. In terms of the areas that need more attention, S2 recommended teachers offer a 1:1 direct explanation in topics/areas that are generally difficult to comprehend, while S3 recommended additional math classes/tutorials. The following statements were made by both participants:

"If one teacher can sit with me and explain the things that are hard for me, that would be very good." (S2)

"Tutoring, I would like some extra classes because math is really challenging. It's really hard for our year Yeah." (S3)

Hands-on Activities:

The vast majority of participants suggested hands-on activities as one of the major recommendations for being supported at school. Students generally agreed that practical, hands-on activities were more useful and better understood compared to the traditional method of explaining topics or abstract concepts. One student (S3) for instance recommended conducting experiments in biology classes rather than merely reading the books and being examined on it. Another student (S1) recommended that teachers allow them to create material for the subjects rather than using flashcards. The following statements in Table 5.13 were made by students regarding this point:

Table 5. 13 Students' responses about 'hands-on' activities

Participant	Quotation
S4	*I would like to do more things hands-on, like I want to do it instead of just learning them from the books*
S1	*Yeah. And like teachers make it compulsory for me to do this and it's just a bit annoying. It's a waste of time. Like personally for me, it's just a waste of time. I'd rather have them say, create reverse material for the subjects rather than have to create flashcards.*
S3	*For example, if let's say biology instead of just reading books and doing exams, you'd be doing like experiments and like in between your hands. Like a practical thing.*

Visual Aids

The use of visual aids was another recommendation mentioned by two students. Participants specifically referred to the use of videos and pictures in the way that information is presented in the classroom. Both student responses were similar about this recommendation, and S4, for instance, said:

"May be teachers can use more pictures and videos when they explain something because we only learn from the textbooks, then we have to figure things out alone"

While S2 stated:

"If I can see more videos instead of listening to the books. I understand more when I see the videos and then I can answer the questions"

Examinations

In terms of examinations, two students had strong views regarding how exams are conducted. One student (S3) expressed her discomfort with the number of exams that are conducted frequently without teachers providing useful explanations about them. She also expressed her difficulty in understanding the reason why students need to be evaluated frequently to assess their level of abilities. Thus, S3 recommended that schools focus more on classes in which content knowledge is explained rather than conducting frequent exams to assess students. Specifically, S3 said:

"Like more classes instead of exams because they would make us do exams and they wouldn't explain it to us! It would just be like you have to do this exam for us to know where you're at."

On a slightly different note, S1 commented on the content itself that is assessed in student exams. He recommended that students are examined differently by demonstrating, for example memorization of long sets of definitions rather than having to write philosophical answers that demonstrate critical thinking skills. Additionally, he referred to reading textbooks as a preparation for the exam rather than having 'preparational' classes. S1 stated:

"Like I don't really, you know, it's like I don't really benefit off it. I'd rather just have like a long set of, you know, like I would have a long set of definitions that I need to remember or just notes or even sometimes if it's just a short topic, I'll just read the textbook."

Independent Work

In terms of group versus independent work, most students participating in this study expressed their preference to work independently rather than working in group settings. Despite the recommendations from literature (Ledford & Wehby, 2015; Carnahan et al., 2009; Kamps et al., 1995; Dugan et al., 1995) arguing that gifted learners with ASD will benefit greatly from grouping, participants of this research expressed the opposite. All participants expressed difficulties working in group settings, as a result of challenges in understanding others in the group, as well as the different abilities of students in the group that may impact the speed of learning. One student (S2), for instance, stated:

"I like to work alone, it's difficult for me to work in groups with the other students when I don't understand the task we are given."

S4 provided a similar statement, adding a social element to the challenges he faces when working in groups. He stated:

"I prefer to work on my own, when I work in groups, my classmates are mean and make me feel bad about not understanding everything they do" (S4)

S1, on the other hand, expressed his preference to work independently for a different reason to the other students. He claims to have experienced little growth when working in groups, as a result of being slowed down (in speed and tasks) by the other students. S1 mentioned that he was able to understand the assigned task and information given much quicker than his peers, which obliged him to wait for other students in the group to catch up. S1 stated:

I mean, first of all, uh, number one, when we like group activities, I personally, um, I'm more of an individual worker. I find it best. I can get most of the work done when I'm just doing work on my own. (S1)

One common theme that was apparent in several student responses is the preference for independent work and self-motivation observed in student characteristics. This was exhibited in three out of four participants' responses, in which student statements indicated a great willingness to work independently versus in groups. The following responses were given by S1 and S4:

"I mean, first of all, uh, number one, when we like group activities, I personally, um, I'm more of an individual worker. I find it best. I can get most of the work done when I'm just doing work on my own." (S1)

"I guess there isn't some sort of support system it's usually just, I'm a very independent person. Mm-hmm and so I just get it done." (S4)

However, S3, on the other hand, expressed her motivation that is driven by her own willingness to improve for herself rather than for others. She stated:

"*I think it's just myself. I don't want to like I'm like, improve for someone. I feel like if I want to improve for myself, I will.*" S3

Pace of Learning

Other student responses indicated emotions of feeling stuck on an academic level or in areas in which the students exhibit exceptional talents. S2, for instance, stated:

"*I want to have also more advanced work in the subjects that are easy for me. I wish that I could go to some special classes where I can learn more music and math.*"

S1 similarly stated:

"*If there was a way I could be in a class with other people at my, you know, academic level, you know, at my academic speed, I would be able to push myself to the limits and, you know, actually make use of the speed, like, learn at my pace and at my level*"

"*So I can act make of the fact, you know, that I can do this and I wouldn't be hindered by other students in my class.*" (S1)

Unhelpful Aspects of Support

Seeing as most student participants expressed dislike towards group work, they were asked specifically about the unhelpful aspects of the provisions they are offered in addition to group work. Findings varied greatly in each response, suggesting that each student experienced the provision offered in school differently. One student (S1) expressed negative emotions towards some of the classic methods of teaching in the classroom that includes teaching with flashcards, mind maps, and what he labelled as 'random activities'. S1 specifically said:

"*And all they are saying, you know, on the card you should do flashcards and all these random activities, mind maps, and stuff for me, I don't find very helpful.*" (S1)

Elaborating this statement, he added:

"*And so sometimes for like homework or any other work, teachers will force me to make like coloured flashcards and highlight different colours and do stuff like that. They make me just do flashcards and all these stuff that I, I don't really find helpful.*"

On another note, S4 expressed dislike towards the way in which teachers would revise the subject content; he mentioned that he would prefer to revise in his own way which includes memorising information using a certain technique that he learnt from YouTube. S4 explained that oftentimes, teachers would revise information that he has already memorised; not only is this unhelpful but it can also lead to frustration, as evident in the following statement made by S4:

"*Uh, a lot of the time when teachers get, you know, for revision, they want to make sure that they do revision for me, I think that's unhelpful and like how we're advised and how I've been able to perform my tests.*" (S4)

When asked about the type of worksheets that students receive, responses generally revealed that students did not find them helpful or beneficial. Although the motives in responses differed, most participants agreed that the worksheets provided were not accommodating. While one learner (S3) experienced the worksheets assigned to her as challenging and complex, two other learners (S1 and S4) expressed boredom as a result of the simplicity of the worksheets. So, while students agreed that the worksheets assigned to them were unhelpful, the motives behind this differed, indicating that worksheets were either too challenging or too simple.

When discussing other aspects of their school experience, students highlighted two distinct points that were of equal importance. S3 raised her concern about the insufficient emphasis on her giftedness by educators and the intense focus on her 'disability' that is impacting mainly her social communication interactions. She explained that oftentimes, she would request to join a gifted program but would be informed that it does not exist in the school. The following statement was made when discussing this issue:

"*The school has never asked us for, told us about a gifted program and you know, I'm sure they would've.*" (S3)

Contrarily, S1 expressed that his teachers place great emphasis on his giftedness while overlooking his other social needs that are impacted by his autism. S1 expressed great

difficulties in developing and maintaining friendships, as well as a general understanding of social cues. In fact, he mentioned several situations in which he had been in danger as a result of his difficulty in understanding the social context; at times, this has led to bullying by other peers in school and even extended outside of the school setting. Despite being aware of his areas of need, S1 expressed discomfort in sharing this with his teachers. Specifically, he said:

"*But the school I like, I prefer as well to like not to have the school involved too much, like much about it, unless it's something extreme.*"

In summary, responses differed greatly, as one student (S3) experienced for instance, socializing in school as a helpful aspect while another student (S4) experienced it as aversive. The variations in responses reveal that students expressed their school experience differently when asked about helpful vs unhelpful aspects of school support, which suggests a clear need for individualisation. Figure 5.8 represents the responses of the students when describing both the negative and positive aspects of support received in school.

Helpful aspects of support
- Having additional worksheets (S2)
- Being intellectually challenged (S1)
- Receiving rewards/appreciation (S4)
- Working online (S4)
- Socializing in school (S3)

Unhelpful aspects of support
- Flashcards and mind maps (S1)
- Revising material in the traditional method (S4)
- Not attending a gifted program (S3)
- Waiting for peers to finish (S2)
- Teachers focusing on students' autism only (S3)
- Teachers focusing on students' giftedness only (S1)

Figure 5. 8 Student responses on the helpful vs unhelpful aspects of support

5.6 Conclusion

This chapter explored the themes that emerged from the survey and semi-structured interviews that were conducted with three categories of participants: educators (teaching students directly), school leaders, and gifted students with ASD. Themes were categorised and presented in themes or sub-themes according to the research questions of this study, which were:

RQ1: What are the provisions on offer for gifted students with ASD in Dubai mainstream private schools?

RQ2: How do gifted learners with ASD perceive the currently offered provision in school?

RQ3: What is recommended by gifted learners with ASD in terms of provisions offered in school?

Regarding RQ1, data suggested that there was no educational framework in place for gifted students with ASD (or twice-exceptional students in general). Educational policies and practices were in place for either SEN students or gifted/talented students (separately), but no official guidance was in place for twice-exceptional students. Thus, it came as no surprise that the responses of educators and school leaders revealed insufficient knowledge, understanding, and awareness of twice-exceptional students, specifically learners diagnosed with ASD. Many of the participant extracts presented in this chapter demonstrate extreme challenges in identifying and supporting such exceptional learners. One apparent and recurring theme was the use of educators' personal judgments and instincts when preparing differentiated work for such learners. This, according to participant responses, came as a result of uncertainty and insufficient knowledge, which was also displayed in educators' recommendations for increased training.

Data from RQ1 was presented through two main themes: (1) Student school experiences, and (2) Student challenges. Interview extracts from participants were displayed to illustrate their lived experiences and viewpoints. Such extracts often pointed to negative school experiences caused by social exclusion, bullying, and being misjudged by teachers or peers. One further theme that was expressed by most students was the level of challenges they were facing as a result of the masking effect, which refers to the ability of students to hide learning difficulties

as a result of their giftedness, and vice versa (Atmaca & Baloğlu, 2022; Foley-Nicpon, et al., 2021; Montgomery, 2009). Responses of students indicated that they were either being over-challenged due to their giftedness, or under-challenged due to their 'autistic characteristics'. This masking effect was also illustrated by students when describing their relationships with teachers and teacher perception of students. Furthermore, student challenges were a recurring theme expressed by all participants. It was divided into two key categories: *academic challenges, and socio-emotional challenges.*

Themes from RQ3 were also divided into two main categories: *socio-emotional support and teaching methods.* All students who participated in this study expressed in common one key recommendation, namely socio-emotional support. This included counselling sessions, support groups, and facilitation in developing friendships. The second theme (teaching methods) was divided into further sub-themes which included: hands-on activities, 1:1 support, use of visual aids, independent work, and a faster learning pace.

In conclusion, the themes presented in this chapter indicate the following points:

- No educational framework is in place for twice-exceptional learners in the country.
- Educators are working according to their subjective judgements and previous experience rather than following an established protocol.
- Educators exhibit a significant extent of uncertainty in working with this group of learners.
- Identification of gifted students with ASD is one of the most challenging areas.
- Students' school experiences are mostly negative.
- The masking effect is causing challenges for educators to understand students.
- Student recommendations on educational enhancements include socio-emotional support and differentiated teaching approaches.

CHAPTER 6: DISCUSSION, RECOMMENDATIONS AND CONCLUSION

6.1 Overview

This study set out to investigate (a) the provisions on offer for gifted learners with ASD in Dubai mainstream schools and (b) students' perspectives and lived experiences. It aimed to explore the support systems in place for this group of learners, in addition to capturing students' voices and their opinions on such provisions. A qualitative research approach was adopted with the purpose of providing a rich, contextualised illustration of the topic and target population investigated (Singh, 2015; Hara, 1995). Data was collected through semi-structured interviews, surveys and document analyses of UAE governmental guidelines and school regulations. Purposeful sampling was used to select schools and participants (educators, school leaders, and gifted learners with ASD) ensuring a selection of information-rich sources. An ethical approach was followed, guided by the University of Glasgow's ethical code of conduct, throughout the entire research process. The guiding research questions for this study are:

- RQ1: What are the provisions on offer for gifted students with ASD in Dubai mainstream private schools?

- RQ2 How do gifted learners with ASD perceive the current offered provision in school?
- RQ3: What is recommended by gifted learners with ASD in terms of provisions offered in school?

Prior to data collection, a pilot study was conducted to increase the validity, relevance and efficiency of the data collection tools used. It also provided first-hand data to better understand the struggles of both educators and students, which ultimately facilitated in improving the phrasing, modification, and enhancement of questions asked in the main study. Data analysis was conducted using inductive and deductive coding, in addition to using a thematic analysis approach.

In this chapter, findings of this study are presented along with a detailed discussion of the themes. The first section of this chapter addresses conclusions and plausible interpretations of the results, in relation to the research questions. This is followed by a section on the

limitations and challenges of this study, recommendations, implications of the study and future research. The chapter ends with personal reflections and gains of the researcher.

6.2 Discussion of themes

This section presents the discussion of the themes developed from this research. The themes were derived from educators' data (including interviews and surveys) as well as student data (interviews). The themes discussed are: (a) educators' challenges, uncertainties, and needs, (b) student differentiation and support, (c) identification of gifted learners with ASD, (d) student school experiences and challenges, and (e) student recommendations. Each theme is discussed in a separate section below.

6.2.1 Educators' challenges, uncertainty and needs

Data from this research suggests that gifted students with ASD struggle to receive adequate support in school due to four main reasons, which are: (1) Misdiagnosis or identification challenges, (2) Educators lack of training/knowledge, (3) Lack of a clear educational framework for such learners, and (4) Inadequate policies/procedures to be followed by educators. Participant data suggested that many schools did not have a systematic support program for such learners, rather, students were supported on a case-by-case basis depending on an educators' own knowledge or judgement. Despite these personal efforts by educators, the findings revealed that some schools would support these students with their challenges rather than their strengths, while other schools would focus on students' strengths while overlooking their challenges. Moreover, in cases where educators would seldom work on developing students' giftedness despite being aware of these students' strengths, the ultimate goal of the school would be to remove barriers to learning related to the students' specific disabilities. Accordingly, certain schools would offer provisions such as student IEP, curriculum modifications and individualized worksheets, that address students' diverse learning needs. This finding confirms the argument of Reis et al. (2014) who state that enrichment of the twice-exceptional student is often a secondary priority, after firstly addressing students' areas of difficulties. In line with this, Baum et al. (2001) stated:

"*Gifted learning-disabled students frequently spend their school lives feeling trapped by their learning deficits and totally ignored with respect to their talents*" (p. 488).

This tendency to focus on disability while overlooking giftedness was apparent in both educators' and students' responses. Students have requested that teachers look beyond their disability and see their true potential rather than focusing on their 'deficiencies'. This problematic situation may be explained by the masking effect (Maddocks, 2020), and can possibly be solved after schools have established a clear system for the identification and teaching of these unique learners (Bianco & Leech 2010; McCoach et al., 2001).

Though some responses suggest that educators focus on student giftedness while overlooking their disability, no participants reported specific provisions offered in this case, apart from students being given additional assignments upon completion of their classroom tasks. Furthermore, despite educators' awareness of their students' abilities, many reported insufficient knowledge about how to best support and develop their students' giftedness. Unfortunately, these findings are neither surprising nor divergent from previous studies conducted in similar contexts. For example, Bianco and Leech (2010) investigated the extent to which teachers meet the learning needs of twice-exceptional students in the classroom and revealed that educators' inadequate understanding of this group of learners was due to an absence of adequate professional development in this field, a lack of school or governmental policies, and an evident lack of structure for supporting such students. In line with these outcomes, this thesis' findings also reveal that most educators connected their inadequate knowledge of supporting this group of learners to insufficient training, a deficient educational structure, and a lack of policies in place.

6.2.2 Student differentiation and support

In order to establish an effective system that actually accommodates the needs of gifted students with ASD in a meaningful way, there are recommendations from the literature which can be divided into three main pillars: (1) legislative policies and procedures (Hemdan et al., 2021; Roleska et al., 2018; Roberts et al., 2015; Weber & City 2012), (2) educators' professional development (Hemdan et al., 2021; Blanchard et al., 2018; Güleç-Aslan, 2013; Berman et al., 2012; Ferguson et al., 2011), and (3) educational programs that are individualized to the students' needs (Weinfeld et al., 2002; Goodman & Bond, 1993). It is

important to note that such programs and policies should account not only for the student needs but also focus on strength-based approaches that can work in favor of governments, where such exceptional students can apply their strengths and giftedness to the benefit of society (Kettler, 2016). Essentially, such approaches should be based on dual differentiation and strength-based programs (Kettler & Sulak, 2022; Baum et al., 2021; Amran & Majid, 2019) where educators are aware of both students' strengths and weaknesses. One such approach is the Response to Intervention (RTI) that identifies student behavioral, learning, and academic skills or needs (Pereles et al., 2009). Through assessment and data collection, this approach can guide educators using a systematic pattern to determine interventions, accommodations and support systems that will consider both the students' areas of needs as well as their strengths (Foley Nicpon et al., 2011). Having said that, it is vital to note that students should not be dealt with using the medical model of disability (Areheart, 2008), which aims to 'fix' the child; rather the role of educators should be to support students in coping with their disability, in order for their giftedness to strive (Baum et al., 2014).

To summarise and answer RQ1 "what are the provisions on offer for gifted students with ASD in Dubai mainstream schools?", the findings of this study have revealed a significant discrepancy between recommendations and best practices found in published literature and the actual provisions offered to this group of learners in Dubai mainstream schools. Some of the main provisions that have been widely discussed and recommended within the academic literature include acceleration (subject-skipping), enrichment in the form of grouping, curriculum adjustments and IEPs (Younis, 2020; Matsumoto, 2019; Reason, 2016; Gross, 2004). The findings of this thesis demonstrated that many of these recommended practices for gifted students with ASD were not implemented in the schools and that this group of learners are mainly offered provisions in school based on educators' previous knowledge, judgements, and instincts rather than a systematic approach that has been set out by educational leaders or school management. Unfortunately, schools did not have a clear program to cater for the needs of both student giftedness and their autism in parallel. Instead, some educators provided certain provisions to autistic students (such as IEPs and curriculum adjustments), while overlooking the students' strengths. Most educators did not offer any individualised gifted provision to their student despite being aware of their giftedness.

In addition to the issues of identification and provision of support, findings from this study indicated that none of the schools have an official policy document written about the identification process or policy for twice-exceptional students, and specifically for gifted students with ASD. While some educators reported having certain protocols and policies in place for Students of Determination, a limited number of participants both from the surveys and the semi-structured interviews reported having a clear policy in place for gifted students. Overall, policies and procedures in place for gifted learners with ASD was not available in the schools selected for this study; this could be explained by the absence of a rigid gifted education framework in schools, as well as a clear guideline about the education of twice-exceptional learners, in particular gifted with ASD. Despite guiding documents that the government of Dubai has put in place (e.g., School for All, Implementing Inclusive Education, Inclusive Education Policy, A Guide for Parents) findings of this study demonstrated inconsistencies across schools when it comes to either gifted provisions or special education programs.

Notably, the findings of this study and international literature about twice-exceptional students, reveal that the paradoxical traits of gifted students with ASD are difficult for educators to understand, which leads to the inequitable and inappropriate support provided to such students. Furthermore, although educators play a vital role in serving such students in school, there is an equal responsibility upon policymakers, stakeholders, and government sectors in setting up an appropriate educational system for this group of learners (Roberts et al., 2015; Neihart, 2008;), one that ensures suitable policies are in place for twice-exceptional students.

These findings are consistent with research in other countries (Foley-Nicpon & Teriba, 2022; Baldwin et al., 2015; Roberts et al., 2015; Willard-Holt et al., 2013), which have demonstrated a lack of policies for twice-exceptional students in schools. Some of these studies suggest that support for this group of students is often in the form of IEPs or accommodation plans that are conducted on a 1:1 basis when deemed necessary for the student. Thus, Foley-Nicpon & Teriba (2022) highlighted the need for a change in the gifted and talented policies of schools to address, and specifically twice-exceptional best practices in identification (using universal screening methods) that ultimately link to curriculum

adaptations and necessary intervention. However, developing a separate set of policies for different categories of students can raise issues about the hierarchy of need, in other words which 'labels' deserve a policy, and which ones do not. For this reason, some researchers (Dirth & Branscombe, 2017; Mansfield, 2016; Behling & Tobin, 2018) argue that universal policies should be developed with the aim of covering all aspects of learning, taking into consideration the various needs of students. In agreement with this, other researchers (Trail, 2021; Baldwin et al., 2015; Reis et al., 2014) argue that all students have different learning needs, whether it be in the form of social challenges, academic difficulties, or higher abilities, therefore, educators should be trained on frameworks such as the Universal Design Learning (UDL), which guides them on where to expect the most variability in learning. Moreover, UDL provides educators with differentiation strategies that can accommodate for a variety of students' learning needs (Hartmann, 2015). To conclude this discussion, researchers (Lawrie et al., 2017; Kozleski & Waitoller, 2010; Ferguson, 2008) have argued that with the global movement towards inclusive education, educators may continue to encounter students with a variety of learning needs. They recommend continuous training and professional development of educators on differentiation strategies and varied teaching methods, which can be applied to all students for the purpose of addressing student challenges as well as fostering talents, regardless of the student diagnosis or label.

6.2.3 Identification of gifted learners with ASD

The issue of **identification** was the most prominent area of concern, which was a key theme consistently throughout both the survey, as well as the semi-structured interviews. The findings of this thesis have revealed there is a fundamental challenge in recognizing and 'labeling' this group of learners due to a multitude of reasons; these will be discussed in detail in the next section. Crucially, outcomes from the data analysis demonstrate that educators experienced challenges with identifying these students, and that no structured identification procedures were in place in schools to assess and evaluate this group of learners. Some statistics from the interviews and survey indicated that 50% of participants were not able to identify a gifted student with ASD accurately, while 57% of participants believed that they have come across a gifted student with ASD who has not been appropriately identified. Significantly, *all* participants (with no exceptions) reported challenges in the identification process of their twice-exceptional students. As a result, 67%

of participants who took part in the semi-structured interviews reported identifying or 'evaluating' their student based on personal judgements and instincts rather than a structured or formal assessment. When asked about the identification process for this group of learners, most educators, who participated in both survey and interviews, agreed that an official identification process was in place mainly for autistic students or gifted students but rarely for a student who exhibits both.

Unfortunately, these findings are consistent with previously published studies that have been conducted on twice-exceptional students (Piskeet et al., 2022; Abi Villanueva & Huber, 2019; Chivers, 2012; Al-Hroub, 2013), which is understandable considering the perplexing nature of this group of learners, who are often overlooked, misclassified, and misdiagnosed. Unlike other twice-exceptional students who exhibit a 'visible' disability (specifically with physical features), giftedness is often distinct and can be clearly recognised by educators and caregivers. Indeed, in cases of twice-exceptionality in which the student is diagnosed with ASD, Henderson (2001) posits that there is an added element of complexity with identification, due to the shared characteristics between autistic students and gifted students, particularly when professionals are either specialized in giftedness or autism, but seldom in both. This claim aligns with several participant responses in this study who mentioned the struggles of educators with separating between their students' giftedness and disability. In fact, this was noted not only in educators' responses but also in students' responses, such as S2 who explained that his teacher often focused on his disability and overlooked his abilities. On the contrary, another student (S3) expressed her concern regarding teachers' high expectations, constantly focusing on her abilities and high-achievements in class and overlooking her other areas of needs. This notion of overlooking one trait of the student (e.g. giftedness) while recognizing another (e.g. disability) in the twice-exceptional student is well-known as the 'masking effect' or the 'camouflaging effect' (Atmaca & Baloğlu, 2022; Buică-Belciu & Popovici, 2014) and is particularly common in gifted students with ASD due to the co-occurrence of both traits of giftedness and disability (Atmaca & Baloğlu, 2022; Foley-Nicpon, Cederberg & Wienkes, 2021; Burger-Veltmeijer & Minnaert, 2011).). Based upon this camouflaging effect, Baum, Owen & Dixon (1991) and McCoach et al. (2001) have divided twice-exceptional students into three categories, and these are presented in Table 6.1

along with participant quotations from this study, which classify the students into one of the three categories:

Table 6. 1 The camouflaging effect on gifted students with ASD

	Category 1	Category 2	Category 3
Description of category	Those with a milder learning disability and exhibit high academic performance, and so their giftedness masks their disability. This group of students typically receive gifted provision but no intervention for their other needs in which challenges exist. (Little, 2002).	Gifted learners who display a recognizable learning disability, and so their disability masks their giftedness. This can be observed in ASD cases where challenging behaviors disguise exceptional talent and leads to lack of appropriate provision (Cao, 2013).	The last group of twice-exceptional students are those who do not receive provisions either for their learning disability or for their giftedness. In such cases, both elements mask each other. (McCoach et al., 2001)
	"I feel like sometimes I'm expected to be great at everything" (S3)	*"I wish that all my teachers would know what I can do." (S2)*	*"I like to be challenged with extra work, but I sometimes feel like the worksheets are too easy and sometimes too difficult." (S4)*
Student quotations	*"My teacher thinks I can do good on all subjects because I have high grades in English and math, but then she gives me really difficult tasks in science also and it's not easy for me" (S2)*	*"My teacher is always dealing with me like I don't know how to do anything" (S4)*	

Based upon the analysis of this data, it could be concluded that two distinct labels are typically used to identify the twice-exceptional student diagnosed with ASD. Rather than considering the identification of such students as *one* label, educators have reported using two separate assessments to evaluate both gifted traits as well as 'autistic' traits on a separate basis. Though this appears logical on the surface, this tendency of separating between two traits of twice-exceptional students can lead to negative influences on the perceptions of educators as well as students themselves (Foley Nicpon et al., 2011). Indeed, Bianco & Leech (2010) clarified that the twice-exceptional student who is diagnosed with a disability before being identified as gifted, is less likely to be referred to for gifted provisions, let alone a giftedness assessment. Conversely, the student who is first classified as gifted is seldom referred to for special education services (Bianco, 2005). As a result, one may argue that applying the label of 'gifted' or 'disabled' distinctively in twice-exceptional students is considered a mislabel, which eventually results in the inappropriate provisions offered to this group of learners. Therefore, it is essential for educators to truly comprehend the twice-exceptional student, recognizing that a disability and giftedness can co-exist, and that students must be viewed in a holistic manner, without distinguishing between the two characteristics. In the twice-exceptional student, exceptionalities often interact, unlike in the case of a student with autism or a gifted student (Baldwin et al., 2015).

One way to potentially resolve this issue of identification, that is apparent in both the findings of this study as well as previous studies, is the clarification and addition of the term 'twice-exceptionality' in school policies and federal legislations (Younis, 2020; Ronksley-Pavia, 2015; Reis et al., 2014; Gilman et al., 2013). Findings of this study revealed that the term 'twice-exceptional' was not applied nor recognized by most educators, hence most educators failed to recognize this group of learners as a separate classification of students.

As previously mentioned, although educators are held accountable for the identification and support of these twice-exceptional learners, it is vital to consider the role of legislative policies and established school procedures to develop a robust identification system for both students and educators to follow (Pereira et al., 2015). One such recommendation of an established identification approach for twice-exceptional learners is the 'multidimensional approach', which views the student in a holistic and comprehensive manner, considering the student's potential in terms of academic, cognitive, emotional, social, and creative areas (Al-

Hroub, 2013). The multidimensional approach may address the student in a manner that does not distinguish between the two characteristics of giftedness and autism, and therefore accounting for the students' comprehensive needs (Al-Hroub, 2010).

6.2.4 Student school experiences and challenges

Chapter 5 presented a detailed account of the data collected and analysed for this study, revealing an empirical account of perceptions and experiences shared by the target participants of this research (gifted students with ASD). Many student responses were similar, in terms of both their perceptions and personal experiences; these similarities in descriptions of experiences meant that themes emerged from the data (in the previous chapter) were supported by several participants' statements, strengthening the trustworthiness of these findings. Some of these similarities that were mentioned at several instances include teacher-student relations, social challenges, sense of self, and feelings of anxiety.

To begin with, a prominent notion that was referred to repeatedly during student interviews was the teacher-student interaction and relationship. Responses from students suggested an overall negative relationship between the learner and teacher. Although reasons for this differed among the participants, most expressed being misunderstood in addition to being marginalised by their teachers. These findings are consistent with previous studies conducted (Ronksley-Pavia et al., 2019; Townend & Pendergast, 2015; Bailey & Rose, 2011) that investigated the student-teacher relations of twice-exceptional children. According to some researchers (Alahbabi, 2009; Bailey & Rose, 2011; Bechard, 2019), this can be explained by the inadequate and insufficient knowledge of educators about these exceptional learners, which is often portrayed in a negative manner. Moreover, due to disruptive behavioural manifestations by such students in the classroom, teachers may respond in hostile ways, which in turn leads to a vicious cycle of disruption by the student and consequently a hostile response from the teacher. Such student-teacher relations can be improved through an increased understanding of the 'double empathy theory of autism'; a theory based on the foundation that autistic individuals struggle with understanding non-autistic people (due to differences in mindsets, communication styles etc.), and that non-autistic people also struggle with understanding autistic people for the same reasons (Crompton et al., 2021; Mitchell et al., 2021; Chown, 2014). Essentially, the greater this disconnection is, the more likely it is

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both parties will struggle with one another in daily interactions. Therefore, there is a joint responsibility on both parties to understand one another, rather than expecting the autistic student to constantly make accommodations for the educator and 'fit in' to satisfy a teacher's expectations.

RQ2 asked 'how do gifted learners with ASD perceive the current offered provision in school?' and yielded multiple interesting responses in terms of how such provisions were perceived by students. One significant finding that was expressed by all students was the inability of educators to understand students' dual needs and characteristics. In some cases, students were expected to over-achieve in all subject areas because of their giftedness, while educators tended to overlook their socio-emotional needs and the fact that these students are not gifted in all areas. In other cases, students expressed their frustrations with being viewed as 'disabled', because thie would cause educators to overlook their abilities and talents. This can be explained by the perplexing co-occurrence of two paradoxical traits that leads teachers to identify one trait while overlooking the other (Brody & Mills, 1997). As previously discussed, this is referred to as the masking effect (Assouline et al., 2006), which occurs when one trait is exhibited more noticeably than another; some gifted students with ASD may exhibit challenges identical to those with a disability while displaying hidden abilities, and yet others exhibit evident gifted traits while also displaying a hidden disability (Assouline et al., 2006).

As a result, Gilger (2013) argued that it is not uncommon for these students to be misclassified and overlooked, falling between the cracks of gifted provision and special education. In this particular study, this finding can be explained by educators' insufficient knowledge about this group of learners, and due to the lack of available legislations by the Ministry of Education and KHDA regarding twice-exceptional students. Again, as previously discussed, the perception of participants in this study suggest that schools ought to have clear guidelines for educators to follow about these exceptional students, but most importantly, schools must have an established definition of what a twice-exceptional student is, that accounts for and describes the dual characteristics and needs of this group of learners. A further notion that should be considered to address this issue is that of the challenges which gifted students with ASD may face in communicating and expressing their concerns. Despite

their exceptional abilities in a variety of areas, gifted students with ASD often face social communication difficulties, challenging them to express and voice out their anxieties (Foley-Nicpon, 2021; Assouline et al., 2009).

It may be argued that the masking effect causes students to experience mixed emotions of feeling over-challenged, under-challenged and misjudged in terms of the academic aspects. While students in this study expressed their frustrations with being ahead of the class, in some cases, their statements would demonstrate the difficulties that faced in certain areas or subjects, however, they were expected to flourish despite their struggles. This observation is consistent with the findings of a study conducted by Ronksley-Pavia et al. (2019), that examined the lived experiences of twice-exceptional students in the context of Australia. They found that students were given little appreciation for their achievements when they performed at 'anticipated disability levels' but also when they performed at a top level with top grades, demonstrating their exceptional abilities. The students interpreted this as evidence justifying teachers' perceptions that students are not in fact gifted, and hence confirming that this group of learners would not be eligible for gifted provision. This observation is of great significance to this study as it may assist in explaining educators' perceptions of gifted students with ASD in Dubai mainstream schools.

A further theme of this study that aligns with a number of other studies (Owen-DeSchryver et al., 2008; Ronksley-Pavia et al., 2018; Vespi & Yewchuk, 1992; Klin, 2000), which investigated the lived experiences of twice-exceptional students was the social challenges experienced by such learners. Findings of this research demonstrate that students faced the most challenges in social interactions within the classroom setting; participants expressed feelings of not belonging, social segregation and marginalisation. Additionally, many students expressed difficulties in forming and maintaining friendships as a result of their social challenges, which is caused by their autism. Unlike with other twice-exceptional students (e.g., those diagnosed with a different condition such as Down syndrome, Dyslexia, ADHD, Dyspraxia) twice-exceptional students with ASD are arguably the ones facing the most significant social challenges (Foley-Nicpon, 2021; Reis et al., 2014). This can certainly be attributed to the diagnosis of autism that is characterized mainly by social challenges (Constantino, 2011; Yoder et al., 2009; Constantino et al., 2003; Baird et al., 2003).

Moreover, students participating in this study expressed being exposed to bullying by peers, being discriminated by teachers, and feeling like a burden to the school – a self-perception which has been connected with suicidal traits (Ronksley-Pavia et al., 2019). One student (S1) specifically stated:

"I do get a feeling from teachers sometimes I do annoy them about, you know, when I finish work early, like in class, for example, to give the students the other chance, like teachers will never, sometimes during the lesson will never answer, like I'm raising my hand to answer the question. They won't, they will they'll, they'll be oblivious to the fact I'm raising my hand because they want others to, to answer."

In contrast, some researchers (Wiley, 2020; Schrag, 2019; Coleman et al., 2015; Gentry et al., 2002) have investigated the lived experiences of gifted students only; their findings indicated that students experienced the school setting as positive and that they were able to easily form social relationships with both teachers and peers. This comparison highlights unequivocal differences between the experiences of 'gifted students with ASD' in schools versus 'gifted students' in schools. It also suggests that the socio-emotional well-being of a gifted student differs greatly when there is an additional diagnosis of a disability.

Despite reporting on a plethora of negative aspects with their school experience, student participants also pointed out certain positive aspects that inspired them to grow and flourish. For example, all participants commented on the additional tasks/worksheets that they were assigned upon early completion of the original task assigned to the entire class. All participant responses were similar on that notion, representing the pride and joy experienced when completing work ahead of their peers. Despite educators' limited knowledge and understanding of this group of learners that was displayed in the findings, it seemed that this was a common practice taking place with most students of this unique target group. As this observation featured so evidently in student responses, it may be worth examining this phenomenon in further detail. It would be of great importance to discover the specific factors that play a role in these feelings of achievement and success of students. By doing so, educational frameworks can include the importance of providing students with appropriate challenges, rather than neglecting the education of those who are doing "well enough" and

performing to certain standards in school. This is crucial because failing to challenge these exceptional students in the areas in which they excel, may lead to feelings of frustration that in turn could lead to manifestations of disruptive behaviors in the classroom (Buttriss and Callander, 2005). This phenomenon has been witnessed in a number of academic research studies conducted (Gentry et al., 2002; Gallagher et al., 1997; Moon, 2009; Ledford & Wehby, 2015).

Notably, the findings of previous studies reveal that gifted students with ASD who were placed in mixed-ability groups felt under-challenged and experienced anxiety from the expectations of comprehending social cues and interactions (Kuusikko et al., 2008). Similarly, the study under current investigation also demonstrated that students perceived group work as an aversive experience due to being over-challenged at times, under-challenged at other times, and required to interact with other students who often times do not understand them – again referring back to the double empathy problem previously discussed. According to numerous scholars (Brulles et al., 2010; Fiedler et al., 2002; Teno, 2000), one of the typical provisions offered for gifted students in mainstream classrooms is grouping. Furthermore, other researchers (Phillips & Lindsay, 2006; Feldhusen & Moon, 1992) argue that this way of working may be advantageous both for the gifted student as well as their peers. Similarly, it has been proposed by many (Ledford & Wehby, 2015; Cappadocia & Weiss, 2011; Carnahan et al., 2009; Garfinkle & Schwartz, 2002), that students with ASD would benefit from being placed in groups for the exposure of social interactions. The implications of the comparisons of such suggestions proposed in the literature to the findings of this study connects back to the previously discussed argument that gifted students with ASD cannot be placed in the same category as gifted students or autistic students. As emphasised in the previous sections of this chapter, it is important to view the twice-exceptional student as a distinct category of students who will not entirely 'fit in' to either the gifted classification or the 'disabled' category (Moody, 2014; Yssel et al., 2010). Identifying this exceptional group of learners as a new category of student may assist policymakers in the updating of educational frameworks, in addition to further research being conducted to examine their specific needs.

Another significant theme that was striking to the researcher was the students' sense of self and self-perception; the reason for this is due to the comparison of the findings of this study to other studies conducted on the self-perception of twice-exceptional students. As has been demonstrated from prior research (Townend & Brown, 2016; Wang & Neihart, 2015; Townend et al., 2014; Barber and Mueller, 2011), the stigma associated with being identified as twice-exceptional can carry negative stereotypes; indeed some research suggests that these children do not have a strong group identity, finding it difficult to identify with gifted children and those with a disability (Miller, 2006). Miller (2006) argues that this lack of in-group identity leads to feelings of being devalued by stereotypes and lacking reference to those with similar experiences – also referred to as 'internalised ableism' (Leigh & Brown, 2020). Other studies published by Barber and Mueller (2011) and Orr and Goodman (2010) found that the self-perception of twice-exceptional students principally resembles those with a disability with less positive self-concepts and higher levels of negative emotions. In contrast, this study found that students were highly aware of their abilities, spoke of themselves with a positive self-concept and mentioned their giftedness more often than their disability. In fact, one student participant (S1) mentioned being exposed to bullying as a result of his giftedness rather than his disability. In the interview he stated:

"*Like sometimes I get picked on for being really good at class, you know*".

One may question if the differences in these findings are linked to the fact that participants of this study are diagnosed with ASD, while the other studies covered a broad range of other diagnoses, such as ADHD, Dyslexia, Dyspraxia, and Down Syndrome. Essentially, several studies have been conducted worldwide, aimed at understanding the paradoxical co-occurrence of autism and high IQ, intelligence, or giftedness. Unlike with other twice-exceptionalities, studies demonstrate high correlations between the two characteristics, with some even labelling autism as a 'disorder of high IQ' (Crespi, 2016), and others posing the question 'is it giftedness or autism?' (Little, 2002). Despite the number of studies (Nguyen et al., 2020; Huang et al., 2017; Drummond, 2013; Foley-Nicpon et al., 2010) that have agreed individuals with ASD often hold negative self-perceptions, the outcomes of this study suggest that a label or identification of being gifted may improve this self-image. Although students participating in this study demonstrated more positive self-concepts than those in other studies, it seems from the findings that educators would not typically view students in the

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same light. Moreover, despite the frequent reference to their gifts and abilities rather than areas of struggles, some students acknowledged the fact that teachers often overlook their abilities and focus on their disability. This notion can be attributed to educators' insufficient and inadequate understanding of the term 'twice-exceptional', the masking effect, and to the overlapping characteristics of ASD and giftedness. Ultimately, student responses in this study can be summarised most accurately by Silverman's (2003) description of twice-exceptional students:

"These children are often teased by their classmates, misunderstood by their teachers, disqualified from gifted programs due to their deficiencies, and unserved by special education because of their strengths" (p. 4).

6.2.5 Student recommendations

On a global scale, only a limited number of studies have been conducted to investigate the perceptions of students and capturing their voices; many of these explore the voices of students with ASD, gifted students, and even twice-exceptional students. However, to date, there have been no previous studies conducted to examine the recommendations of gifted students with ASD, specifically regarding the provisions offered in schools. Answering RQ3, this section will present the recommendations of gifted learners with ASD.

One of the most remarkable recommendations proposed by students in this research was the need for socio-emotional support that was evidently lacking in schools. In accord with researchers (Garfinkle & Schwartz, 2002; Huitt & Dawson, 2011; King, 2005) who emphasise the inadequate social provisions available in school systems as part of the special education program, participants expressed their concern about the insufficient support received in terms of their social development. One student (S3) for example stated:

"Yeah, I would like to go for counselling or social groups in my school, but I don't, I mean it's nothing that someone told me about."

Interestingly, other students expressed their wish to gain more social skills in order to be able to better comprehend social interactions in school associated with social cues and language-

related concepts (e.g., metaphors, irony etc.) where students with ASD typically struggle (Levinson et al., 2020; Bauminger-Zviely et al., 2019). Autism being a condition mainly characterized by social challenges, it is important to distinguish between the general definition of twice-exceptional students which encompasses all other types of learning disabilities (Reis et al., 2014; Foley-Nicpon et al., 2013) and gifted learners with ASD. Despite their giftedness, such students still struggle to develop social relationships due to their difficulties in comprehending and adapting to social settings. The student responses of this study confirm this notion that has been previously established in literature, that the education system in general is founded mainly on academic performance with little emphasis on the social development of students in school (Ayoub & Aljughaiman, 2016). Also, there was a call for a change in the education system of *all* students, with a greater emphasis placed on fostering the social development of students. By incorporating social development as part of the school curriculum, schools are not only addressing the social needs of autistic students but are also teaching the mainstream classroom students' acceptance, inclusion, and respect for differences (Huitt & Dawson, 2011; Owen-DeSchryver et al., 2008). Some countries such as Sweden, Denmark and Finland that base their educational values on neurodiversity, have provided compelling evidence to suggest that children from a young age develop a better comprehension and acceptance of individual differences, allowing them to effectively be themselves, which in turn leads to a more inclusive society (Lorenz et al., 2017; Beckett, 2009); this also being one of the main visions and goals of the UAE Vision 2021 (2018a).

Another important concept that ought to be considered when developing such a curriculum is the double-empathy problem of autism. The term 'double empathy problem' was first coined by Milton (2012) who reframed the long-held notion that those on the autism spectrum have impaired theory of mind (i.e. the ability to infer other's emotions or intensions) to include possible misinterpretation and miscommunication by non-autistic individuals. Due to the mutual difficulty in both parties understanding each other, it is imperative to teach all students from a young age the social requirements and understanding of not only learners with autism, but also any neurodiverse learner. Additionally, as apparent in the findings of this research, gifted students with ASD place an extensive burden on themselves to acquire social skills and 'fit in' to social circles; hence it is only fair to argue that all students in school should learn the necessary competences to meet these learners halfway, and in this way moving towards a social model of disability.

Regarding teaching and learning methodologies implemented in the classroom, student responses demonstrated that the current provisions and support received was not in alignment with the recommendations that were made of how to 'be best supported'. Some of the recommendations commonly shared by most students include the use of hands-on and practical activities. One student (S3) for instance quoted:

"*For example, if let's say biology instead of just reading books and doing exams, you'd be doing like experiments and like in between your hands*"

Additional recommendations mentioned by participants include incorporating visuals (images and videos) during teaching, replacing exams with classes, 1:1 support in challenging subjects, and more independent work (with less group work). Regarding the point of 'groupwork' versus 'independent work', findings from this research reveal a vivid account of the aversive emotions of students towards working in groups. The efficiency of group work for twice-exceptional students has over the years been a controversial debate, with scholars arguing both for and against it (Willard-Holt & Morrison, 2021; Baum et al., 2014; Willard-Holt et al., 2013). While some authors (Carnahan et al., 2009; Preckel et al., 2017) argue that group work fosters social development, creativity and collaboration, others (VanTassel-Baska and Stambaugh, 2006) suggest that this form of teaching burdens students with high social expectations, ultimately working against the needs of the twice-exceptional student. For students diagnosed with ASD, this is particularly true and is observable in the social interaction challenges characterised by ASD. This argument has been supported by a number of the students' statements demonstrating the social challenges faced when working in groups:

"*I prefer to work on my own, when I work in groups, my classmates are mean and make me feel bad about not understanding everything they do.*" (S4)

"*I like to work alone, it's difficult for me to work in groups with the other students when I don't understand the task we are given*" (S2)

A possible cause of the negative emotions experienced by these learners is the fact that students are placed in mixed ability, heterogenous groups (Fiedler et al., 2002; Preckel et al., 2017); and as revealed in their responses, this group of learners feel either over-challenged or under-challenged when working in groups, and some even being exposed to bullying. Thus, it

would be significant to examine if the impact of group work on these students would vary if they were assigned to a homogenous group, which is based on grouping as per students' similar abilities (Davis and Rimm, 2004). In this way, students may be able to perform and learn at a level that aligns with their abilities and pace.

In terms of practical implications, it is arguable significant for decision makers and educators to take this point into consideration when developing educational frameworks and teaching methods for gifted students with ASD. Although gifted students with ASD classify into the twice-exceptional label, they differ from the other categories of twice-exceptional students in terms of their characteristics and needs. For example, a twice-exceptional student with ADHD may struggle with their academic studies due to an inability to sustain or maintain attention for an extended period of time, while a twice-exceptional student with ASD will face challenges in social aspects (Baum et al., 2021). Thus, one established framework for all twice-exceptional students may not be applicable for all such students classified into this category, and so the need for individualisation remains important, particularly in terms of curriculum differentiation.

In terms of curriculum differentiation, every single student participant mentioned feeling under-challenged in areas in which they excel, while feeling over-challenged in other areas. Thus, many students participating in this study suggested attending special programs or classes wherein they may develop and foster their talents. S1 for instance stated:

"*So, if there is a way that like maybe like special lessons to people that can pick other people that are, can learn at a similar speed as me teachers could go through much more stuff, much quicker with much higher com so we can get to a much higher complexity in the lesson*".

Similar to the above statement by S1, many students in this study mentioned similar concerns, which can be divided into two key components: (a) the complexity of the subject and (b) the pacing issue – an issue often overlooked when considering enhancements of gifted education (Siegle et al., 2016). Pacing is defined as the speed in which the student is learning novel information appropriate to their abilities, in an effort to provide the appropriate level of intellectual challenge (Pejic-Bach, 2010). Reason (2016) have generally argued for pacing as part of the appropriate provision for twice-exceptional students, however it is imperative to consider that students who exhibit abilities in learning at a faster pace may also surpass the grade or subject in which they have been placed as part of an acceleration. Soon

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after the accelerated placement, gifted students may demonstrate abilities that are equivalent with those in higher grades, however, their ability to acquire new information may result in students again exceeding expectations, thus having to advance another grade up within a relatively short timeframe. This will not only lead the student to feelings of boredom or feelings of being under-challenged, but it is also likely to increase the social-emotional gap that exists between the gifted student and peers (as a result of the age difference), which in turn may lead to another aspect of a negative school experience for the twice-exceptional student. Although subject-skipping has for decades been recommended by scholars for gifted students (Ford, 2012; Assouline et al., 2017), it is imperative to reframe gifted education to incorporate the needs of those who exhibit giftedness accompanied by other learning and socio-emotional needs. Ultimately, many of the recommended practices mentioned by students demonstrate a need for individualisation and tailor-made programs; this is because currently, their academic and social needs are not being adequately met.

6.3 Linking the theoretical framework to findings

This section presents theories and models that make up the theoretical framework of this study. Findings of this study are linked to theories which consist of (a) ASD theories, and (b) Giftedness theories.

ASD theories

There was a clear and evident association between the cognitive-psychological theories identified in this study, proposed to explain autism, and the actual findings from the collected data in this study. Through this study, the researcher intended to present a connection between cognitive processes of autism (explained by these theories) in relation to learning and education. Significantly, there was an evident relationship found between all the cognitive-psychological autism theories and the results of this research.

Firstly, the Central Coherence Theory (Frith, 1989), which is based on an understanding of the way in which information is cognitively processed in the human mind, proposes that autistic learners will typically fail to comprehend the 'bigger picture' or meaning of a

situation and instead focus on details. According to some authors (Roth et al., 2010), this inability, or arguably ability, impacts how students with ASD process information in the context of mainstream schools. Such students may demonstrate difficulty in processing abstract concepts that require the comprehension of the 'bigger picture', while on the other hand they may exhibit superior ability in modules such as math and physics that typically require attention to detail. This phenomenon was observed in both the responses of educators and the responses of students themselves. Indeed, in this study, the interviews conducted with educators and school leaders pointed to the difficulty of gifted learners with ASD in understanding abstract concepts, which require the ability to understand 'the whole picture'. This can also be observed in social interactions and contexts in which the individual needs to understand the meaning of the situation rather than details. On this point, E5 (arts teacher) stated:

"*I feel he doesn't understand why he's in school, mm-hmm, uh, because the whole purpose of school. I mean, other than just education is to interact with people and your social skills.*"

Moreover, on the same notion, when asked about the more advanced modules, which require abstract thinking, S2, a grade 5 gifted student with ASD stated:

"*I sometimes feel angry when I cannot answer a question correctly. Sometimes my support teacher is trying to explain to me how to understand the question, but I still don't understand*"

This struggle faced by these participants can also be explained by the Executive Dysfunction theory (Damasio and Maurer, 1978) which proposed that autistic learners display difficulties in tasks tapping executive skills which include task flexibility, planning, problem solving, working memory, initiating, sustaining, shifting, inhibition and execution of actions (Lezak et al., 2004). For this reason, the theory indicates that although students with ASD may gain a high IQ score on intelligence tests, cognitive deviance (such as shifting attention, planning and problem solving) may still be impacting vital operations such as focusing, learning and task completion, all of which are crucial for effective education (Scheuffgen et al., 2000). Although this theory may help with explaining certain characteristics of ASD such as repetitive, restricted behaviours and interests (Gulisano et al., 2020), results from this study demonstrated different stances on this theory. Notably, some students who participated in this study indicated difficulties with certain cognitive functions as explained by this theory, such

as task flexibility and advanced problem-solving. When asked about the different teaching methods which are based on task flexibility, one student (S4) stated:

"Like I don't really, you know, like it's like I don't really benefit off it. I'd rather just have like a long set of like, you know, like I would have like a long set of definitions that I need to remember or just notes or even sometimes if it's just a short topic, I'll just read the textbook" (S4)

Despite the fact this statement demonstrates a lack of flexibility in the way teaching takes place, it also highlights a strength in memory – one cognitive function argued to be 'impaired' in autistic learners (Damasio and Maurer, 1978), and so it contradicts with the theory. Interestingly, this aligns both with the sentiments of other students who took part in this study, in addition to other studies (Grainger et al., 2017; Bordignon et al., 2015; Boucher et al., 2012) that have been conducted to investigate the superior memory skills of those on the autism spectrum. On a related note, many students who participated in this study displayed an above average IQ score, however, they showed a mixed ability in the cognitive functions required for effective learning as described in the 'Executive Dysfunction' theory. Responses from both educator and student participants suggested students generally struggle with learning that requires abstract problem solving, shifting attention, and task flexibility, while exceling in other areas like memorisation, and problem solving which is based on systematic patterns – a phenomenon that can be explained by the 'Empathising-Systemising' theory (Baron-Cohen, 2009). Put simply, this theory claims that individuals on the autism spectrum exhibit exceptional ability in 'systematic patterns' while displaying low levels of empathy. This description of autistic learners has been widely used (Whiteley, 2020; Stow, 2020) and appears to be supported by the findings of this study.

Although participant responses did not directly emphasise empathy as a weakness in autistic learners, or social struggles including understanding of others, many researchers (Crompton et al., 2021; Mitchell et al., 2021; Fletcher-Watson & Bird, 2020; Nicolaidis et al., 2018; Pasalich et al., 2014; Milton, 2012) have argued that such struggles are based on the empathy problem of autistic people.

In line with the Empathising-Systemising theory (Baron-Cohen, 2009) findings of this study also suggest that learners on the autism spectrum indeed exhibit advanced ability with

'systematic patterns', which can assist in explaining many of the gifted traits in these students. The areas of giftedness exhibited in student participants of this study were: math, physics, arts, music, and memory skills – all of which are founded on certain systematic patterns (Ziegler & Phillipson, 2012). Interestingly, only student female participant in this study, S3, exhibited giftedness with leadership (a social domain) and literature. This can be linked to the 'Extreme Male Brain' theory (Baron-Cohen, 2002) that posits that autistic learners typically process the world through a 'male' lens that is based on stereotypically 'male topics', rather than a 'female' lens in which people would be better at grasping social cues (Baron-Cohen, 2010; Baron-Cohen, 2002). These social challenges can also be explained by the 'Theory of Mind' (Leslie, 1987), which posits that autistic people are unable to form a 'decoupled' representation of concepts that are not tangible. Consequently, this prevents both an ability to pretend play, and an ability to understand other's beliefs, thoughts, and feelings; and so subsequently predict others' behaviors (Williams, 2010), a mechanism necessary to develop and maintain social relationships. Linking this theory to the participant responses, one student (S1) stated:

"Challenges, I mean socially yeah. Making friends and knowing the difference between right and wrong, like where I'm taking something too far, you know, because I have gone in trouble a few times for taking stuff like really, really far in school and you know, taking a joke really, really like way too far"

This extract from the student interview suggests an 'impaired' theory of mind, in which the student struggles to distinguish between right and wrong, socially, as well as understanding of boundaries, which can be related back to the main concept of the theory, which is the inability to understand others' feelings and thoughts. There is no doubt that social struggles were the main challenge of students reported by both participant groups. Socio-emotional challenges that were apparent in the themes were: understanding others, others understanding student, difficulty in developing relationships, bullying, and social exclusion. Thus, it comes as no surprise that one of the most frequently mentioned recommendations by this group of students was socio-emotional support. The following extracts from student interview demonstrate the desperate need of students to belong, fit in, and be accepted:

"Yeah, I would like to go for counselling or social groups in my school, but I don't, I mean it's nothing that someone told me about." (S3)

"If I can have the chance to interact in groups, like meet other people and make more friends. Making friends for me has always been difficult." (S4)

"I want to have more friends. Sometimes I feel like nobody wants to be my friend." (S2)

Similar recommendations by students have been reported in studies (such as Chandler, 2015; Ford, 2012; Ford, 2010; Nielsen, 2002), who examined the recommendations of gifted students in school. This can also be linked to the overlapping characteristics of autistic learners and gifted learners that have been reported by Burger-Veltmeijer & Minnaert (2011).

Giftedness theories

The findings of this study are consistent with some of the theories about giftedness that were discussed in the Literature Review, while inconsistent with some others. The most applicable theory of giftedness that went in line with the findings of this study was Gardner's (1983) theory of 'Multiple Intelligence', as he (ibid) argues, giftedness comes in a number of domains and can be observed in several forms. This theory was adopted for the purpose of examining how such giftedness descriptions could help teachers in recognizing gifted potential. The findings of this study show that educators indeed used similar descriptions to that of Gardner in order to identify gifted potential in their students. For example, one educator (E4) described her students' giftedness based on the 'verbal-linguistic' domain of Gardner's proposed theory, stating:

"I just noticed one boy in our school, he was gifted in reading, mashallah he was really good in reading from KG itself"

Moreover, another educator (E5) described her students' artistic giftedness based on the 'visual-spatial' domain, stating:

"He is just a brilliant artist"

Also, one student statement that is founded on the 'musical domain' in the Multiple Intelligence theory (Gardner, 1983) was:

"I can hear the melody of a song a play the same on most of the instruments in music class. My teacher also asks me to tune the instruments in the music class" (S2)

This theory shows as per the participant responses that giftedness can be exhibited in one domain only while the student may still manifest profound challenges in other areas. This was not the case with the other theories of giftedness, such as Renzulli's (1977) Three-Ring Conception of Giftedness and Gagné's (1992) Differentiated Model of Giftedness and Talent. The Three-Ring Conception of Giftedness theory for instance posits that three categories of human traits, including above average ability, task commitment and creativity must co-occur for the student to identify as gifted. The findings of this study however, demonstrated that gifted learners with ASD were able to show gifted potential but not necessarily demonstrate high levels of task commitment. Indeed, this trait was rarely apparent in students, particularly as they were not sufficiently encouraged and motivated by schools to demonstrate their gifted potential. Moreover, although students demonstrated above average ability and creativity in different areas, educators still struggled to understand if they would classify as gifted or not. For this reason, the Three-Ring Conception of Giftedness does not align with the examined target population of this study. One could argue this is because creativity and task commitment could be traits existing within these students but have not yet been discovered by parents or educators due to insufficient environmental support, as was observed in the findings of this study. This is an important aspect of fostering giftedness, addressed by Gagné's (1992) Differentiated Model of Giftedness and Talent. The core of this model emphasises the evolving progression of giftedness and potential for talent. Gagne (2008) distinguishes clearly between the term gifted and talent and argues that talents derive from gifts (inborn abilities) through continuous practice and exposure. This understanding of the transformation process was displayed in several educators' responses. E3 for instance stated:

"I think he, just needs to transfer that into something different, something useful. The ability is already there"

Considering the theory differentiates between two traits (gifted and talented), it may actually help educators in identifying potential gifts, which are often overlooked because they are not 'apparent enough' in an education system that overlooks potential because of a co-occurring disability. Having said that, despite its application to this study, the theory could not explain some of the findings of this study that suggest students did not have to practice their 'innate

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gifts' to exhibit talent; S1 for instance said:

"I remember when I was in kindergarten, my, I don't know if mom told this story, but my principal said that like there was nothing for me to learn."

This same student (S1), along with other similar student statements, stated:

"In class, for example, a teacher would say something. And then I get it done. And he is like, how do you know? How did you do that so fast? I didn't know, even though I didn't practice it."

Despite its various stances in the context of this study, the theory undoubtedly acknowledges learners with gifted potential, but not yet demonstrating this ability or high achievement, which is one area that is often overlooked, and ultimately ends in the demotivation of students, and wasted potential (Winebrenner & Brulles, 2008; Siegle & McCoach, 2005).

Link to research questions

To sum up the relationship between the theoretical framework and the research findings of this study, the following section describes the abovementioned discussion and its connection to the research questions of this study.

RQ1: What are the provisions on offer for gifted students with ASD in Dubai mainstream private schools?

Based upon the findings of this research study and its connection to its theoretical framework, it is evident that the provision offered for this group of learners in mainstream schools would benefit greatly by considering the cognitive processes of autistic students. Despite the fact that individuals are identified as gifted students, their cognitive processes differ from those identified as gifted only, as a result of their autism. Therefore, a key recommendation of curriculum developments for such learners would be using the students' strengths such as systematic thinking, memory, and attention to detail, to nurture and foster other areas of challenges. One of these challenges that can be considered the main challenge of autistic and gifted individuals is the 'social functioning'. Considering this, educational structures would

benefit from offering socio-emotional support as a main area of education, not only to autistic or gifted students but moreover to *all* students.

Furthermore, identification of gifted learners with ASD is one major domain that must be considered when developing the right provisions for this group of students. Findings of this study demonstrated the reality that educators mainly used Gardner's conceptions of the multiple intelligence theory to recognise potential in their students. The different giftedness theories adopted in this study compensate for each other's weaknesses and present an overall approach for recognising giftedness in these exceptional learners, considering their other areas of challenges. One key consideration that was demonstrated in the findings of this study is gifted potential that has not been transformed into a talent because of insufficient environmental support, as proposed in Gagné's (1992) Differentiated Model of Giftedness and Talent.

RQ2 How do gifted learners with ASD perceive the current offered provision in school?

According to the cognitive-psychological theories of ASD presented in this thesis, children on the autism spectrum process information differently from their neurotypical peers. Thus, it is not surprising that the students examined in this study reported overall negative school experiences feeling under-challenged in the areas where they excel, and over-challenged in difficult domains and modules. This can be directly linked to two autism theories in specific, namely the 'central coherence theory' and the 'empathising-systemising theory', which both posit that autistic learners demonstrate exceptional ability in attention to detail and systematic thinking, while exhibiting weaknesses in empathy and understanding the social 'whole'. These two theories can explain the challenges such students experience on a regular basis in the context of the mainstream school setting that have been reported in this study. The students' ability to solve complex mathematical problems for instance, as reported in students and educators' responses, can be linked to their exceptional ability in systematic thinking and attention to detail, while their difficulty in understanding other's viewpoints and feelings could cause challenges not only in social settings, but even in the understanding of academic abstract concepts (Duncan & Bishop, 2015). These two paradoxical exceptionalities are

according to Baldwin et al., (2015) the main reason that twice-exceptional students are under-served, overlooked, and misidentified, ultimately leading to an overall negative school experience.

RQ3: What is recommended by gifted learners with ASD in terms of provisions offered in school?

The recommendations proposed by students were divided into two main themes, namely (a) socio-emotional support and (b) differentiated teaching methods.

Considering that autism is a condition characterised by social challenges (Cai & Richdale, 2016), it is not surprising that students suggested the implementation of support such as counselling services, attending social groups, and working in homogeneous groups rather than heterogenous ones. Despite that some studies (such as Cummins et al., 2020; Constantino, 2011; Nguyen et al., 2020) have presented a certain level of resistance from autistic students when it comes to social interactions and developing friendships, this study found the opposite. Students who participated in this study showed an interest in developing friendships, and a desire to attend sessions that would assist them in coping better on an emotional and a social scope. As the previously mentioned studies examined autistic students (who did not exhibit gifted traits), this difference in outcomes could possibly be linked to the students giftedness and awareness of their need to 'fit in'.

In regard to differentiated teaching methods, students recommended the use of visual aids, practical (hands-on) activities, independent work, 1:1 support, and a faster learning pace. Such student recommendations evidently display combined traits of autism and giftedness, where for instance faster learning pace and independent work have been recommended for gifted learners (references), and visual aids, 1:1 support, and hands-on activities have been recommended for autistic learners (references). Such strategies have been discussed and presented in chapter 2 of this thesis, and is derived from Willard-Holt et al. (2013). They proposed efficient teaching strategies for gifted learners with ASD that compensate for the student's weaknesses and fosters the student's giftedness. Similar to the students' recommendations in this study, they proposed the use of visual aid to convey meaning, the use of various learning styles (recommended as 'hands-on' activities by student participants)

and arranging supervision with a mentor (recommended as 1:1 support by student participants). Despite such similarities, other differences were found between students' recommendations and the suggested strategies proposed by Willard-Holt et al. (2013). One such example is the learning pace (and time) given to students to complete assignments. Students who participated in this study recommended a faster learning pace, while Willard-Holt et al. (2013) suggested providing extra time for exams and assignments (Nielsen, 2002). This can be attributed to the areas in which students excel and manifest gifted traits.

Ultimately, the findings of this study agreed with the existing literature in some respects while they opposed the literature in others. This can be explained by the unique perspective of each individual child. Because every child is unique in nature, learning strategies or support systems in place must be unique, and tailored to the unique needs of each child.

6.4 Recommendations

For several reasons, the paradoxical and unique nature of twice-exceptional students indicate a significant need for change in the education system of this exceptional group of learners in Dubai. Findings from this study reveal inconsistency in policies, procedures, educational programs, and support for gifted students with ASD in schools. Responses from students interviewed in this study demonstrated feelings of being misunderstood, misjudged, and overlooked in the classroom. For this reason, a number of practical contributions/ recommendations are proposed in this section to provide clarity and consistency to educators, in addition to offering a more positive school experience for this target population. The recommendations presented in this section do not merely derive from the findings of this study but are furthermore based on a human rights perspective, and the right of every child to attend a mainstream school regardless of their differences and learning needs (Alquraini & Gut, 2012). Accordingly, the recommendations presented in this section are linked to identification, increased awareness of twice-exceptionality, and changes to school curriculums (personalisation/ individualisation and double empathy to all learners). These are presented in further detail below.

The first recommendation proposed is based on one of the most significant (and unanticipated) findings of this research that was re-current in both the students' and

edcuators' themes, and is namely the imperative need for an established approach to identify this group of exceptional learners. As evident from the data analysis, identification of these students was a key factor in understanding and supporting them. Through the establishment of an agreed upon methodology for identification of such learners, educators and professionals can (1) develop a more comprehensive understanding of the student, and (2) meet the needs and potential of these learners, leading to their improved emotional well-being and self-perception (Orr & Goodman, 2010). In addition, many scholars (Goleman, 2006; Renzulli & D'Souza, 2012; Renzulli et al., 2006) have addressed the societal value such students can add and their impact on change, once identified correctly. Therefore, it is recommended that the inclusion framework (KHDA, 2019) that serves as a guide to Dubai private schools in supporting students of determination, should be adapted to include a novel category of students (i.e., twice-exceptional students) rather than separating gifted students and students of determination.

Findings of this research show that the term 'twice-exceptional' was not commonly used or understood by participants. Hence, there is an apparent need for increased awareness of twice-exceptional students in schools, not only for educators, but also for decision-makers, policy makers and management. As with autism, and giftedness, it is vital that the inclusion framework (set out by the KHDA) defines the term clearly by describing characteristics and attributes of these learners, including sub-categories such as gifted students with ASD or students with physical disabilities who exhibit giftedness. Thereafter, schools should then be guided by such established guidelines in order to avoid misdiagnosis, misidentification, or delayed identification of such students. Multiple studies (Gardner, 2008; Silverman, 2011; Orr & Goodman, 2010) have demonstrated that a self-comprehension of such students' diagnosis may assist in forming compensation strategies that may be highly efficient in the school setting.

The second recommendation that emerges as a direct follow-up to the first recommendation is the development and implementation of clear, established policies set out by the KHDA and MoE to be followed by schools for this target population. Examples of the content included in such documents would be the description of practices, resources, staff roles and the involvement of other stakeholders (Roberts et al., 2015). A vital aspect of this policy should cover the inclusion department, its hierarchy, roles, and responsibilities. As observed

in the findings of this study, educators demonstrated confusion about their roles in the identification and support of these gifted students with ASD. Thus, it is imperative that the inclusion department is equipped with the right personnel, resources, and tools to support such learners (Lee & Ritchotte, 2018; Foley-Nicpon & Lin, 2022).

The third recommendation is to promote and encourage the enrollment of gifted learners with ASD into gifted institutions established in the UAE. As discussed previously, there is an evident need for increased awareness and identification of twice-exceptional students in the country. If educators are not able to recognise this group of learners, students are not likely to be referred for gifted programs (outside of the school setting). Thus, by increasing awareness and understanding of 2e students, enrollment of this population into gifted institutions will not only reflect positively on the child him/herself, but also on the institution in a variety of ways. One such benefit for gifted institutions is the diverse perspective that 2e students bring to the table. Their learning differences can challenge the class to think in novel ways and approach problems from different angles (Cao, 2013). A further advantage is the increased social skills and emotional intelligence that develops in their gifted peers as a result of their learning of empathy, patience and understanding that matures through encounters with 2e students (Goleman, 2006).

As several scholars have argued (Luor et al., 2021; AlGhawi, 2017; Gelbar et al., 2022), twice-exceptional learners, particularly those gifted with ASD, can act as great contributors to a country, as they present innovative ideas that may serve the country's economical growth. Wasting such talent and human capital could be avoided by aligning schools' support programs with policymakers in the country. As a final note, it is important to point out that the positive contribution to society should not act as a justification for the additional support such individuals receive, but rather it should act as an opportunity for such bright minds to voluntarily take part in such initiatives.

The fourth recommendation is based on findings from participant data that indicates an extensive need for meaningful professional development of educators and school management. Participant responses from both interviews and survey demonstrated challenges in understanding and implementing educational programs for gifted students with ASD due to

the variation in their combination of their strengths and weaknesses. This was also shown in students' responses who expressed feelings of being frequently misunderstood by their teachers. Professional development is therefore one of the key recommendations that have been observed both in the findings of this research and in several other studies investigating educators' awareness of twice-exceptional students (Bailey & Rose 2011; Foley-Nicpon et al., 2013). According to the Center for Disease Control and Prevention (CDC), the estimated prevalence of ASD is currently around 1 in 54 children. Considering this ratio, it is important for educators to learn how to incorporate this population into the mainstream school setting, taking into account that a number of these students may also exhibit gifted potential.

The fifth recommendation, as suggested by many of the student participants in this study, is the need for customised, individualised teaching methods and curriculums. Despite the need for an established identification and support system in place for this group of learners, findings from student responses demonstrate a significant need for individualisation. While some students described one teaching approach (for example being assigned additional tasks) as aversive, others experienced it as beneficial. The discrepancies in student responses on their school experiences demonstrates the need for educators to view students based on their individual traits, preferences, strengths, and weaknesses rather than following a set curriculum taught to all. As McClaskey (2018) stated:

"*Personalised learning is not what is done to the learner or about tailoring the learning. It is about helping each learner to identify and develop the skills they need to support and enhance their own learning so that agency and self-advocacy can be realised*".

The final recommendation that has been indicated by many participant responses is the need for an increased understanding of the double empathy problem of autism. Through both the students' and educators' responses, it is obvious that both teachers and peers of this group of learners are not able to understand the nature and needs of autistic students. One suggestion that would certainly add value to the school curriculums is the incorporation of teaching young children acceptance and embracement of neurodiversity. Such practices have been observed in some countries around the world, for example in Sweden, where young children are taught about differences in appearance, mindsets, and behaviors through songs, stories,

and play (Pramling-Samuelsson & Sheridan, 2009; Biamba, 2016). Autistic students are not in this sense required to 'fit in', but rather, the society is fit for the student.

This research on gifted students with ASD in Dubai mainstream schools calls for change and transformation of educational legislations and regulations in the emirate of Dubai. The UAE is a country that continuously works towards inclusion and places high value on people of determination (Morgan, 2021; Anati, 2012). Gifted students with ASD (or twice-exceptional students in general) are one such group that have for decades been overlooked, misclassified, and misdiagnosed (Abi Villanueva and Huber, 2019), and so this research calls for updates in the educational framework to ensure efforts in decreasing such inequality or marginalisation. In order to ensure that inclusive practices are taking place on a governmental level, gifted students with ASD (or twice-exceptional students) must be considered a distinct category of students who require a unique educational approach. This can potentially help such students to grow, while also aid in the fulfilment of Dubai's vision to be a truly and fully inclusive country.

6.5 Study contribution

This study has examined and investigated a globally under-researched area. Being the first of its kind in the UAE, it explored 1) the provisions on offer for gifted learners with ASD in Dubai mainstream schools, 2) educators' awareness and perspectives, and 3) student experiences. As this study addressed two schools of education (gifted and special education), it contributes to the body of knowledge in three research areas, i.e., autism, giftedness, and twice-exceptionality. Combining such distinct, yet interrelated subjects has enabled the researcher to contribute to the literature in a variety of ways that differ from prior research conducted in this area.

Firstly, this study has addressed and examined autism and its overlapping characteristics and association with giftedness. Unlike previous research that has examined twice-exceptionality in general (Lee et al., 2018; Legget et al., 2010; Missett et al., 2016; Moody, 2014), this study has shed light specifically on learners with ASD, their distinct characteristics, and the impact

of this on their learning and experiences in school. This research presents and adds to the literature student perspectives of a unique target population that challenge previous conceptions/recommendations in the literature on 'best practices' in the education of children with unique learning needs.

Secondly, this research suggests that there is an evident discrepancy between the students identified as autistic and gifted and those identified as twice-exceptional (in general). This research indicates that the differences in characteristics of autistic learners and for instance Down syndrome or ADHD calls for differentiation not only in educational approaches, but also in the classification/identification of these learners. There has been little emphasis on the unique characteristics of autism and how they differ from the rest of 2e learners in the literature, and so this research presents these unique characteristics from a perspective that differs significantly from previous research (Moody, 2014; Neihart, 2000; Nguyen et al, 2020). For decades, the label 'autism' has been associated with impairment, deficiencies, and challenges (Neta & Varanda, 2016) while the label 'gifted' has been viewed in a positive light. This study counters such views and presents descriptions of the autistic mind (from both the literature and the findings) implying that these so-called 'impairments' of an autistic individual is in fact the features that could possibly explain gifted potential. In this respect, this study does not only present a unique conception of the association between ASD and gifted potential, but it essentially presents autism as a neurodivergence rather than a disability, and in this way navigates away from previous negatively charged conceptions of ASD.

Thirdly, this study has demonstrated evident differences in the findings of previous studies that explored twice-exceptionality in general. Such examples include studies conducted by Barber and Mueller (2011) and Orr and Goodman (2010) who found that 2e learners would generally struggle with negative self-conceptions and low confidence. In contrast, this research found that self-perception in this unique target group was positive and affirmative. The implications of such differences in the findings are not only important to the literature on autism but also on giftedness. While literature on giftedness has often portrayed giftedness as one single aptitude (Krochak & Ryan, 2007; Wallace et al. 2018; Lovett, 2013), the findings of this study imply that gifted potential will differ depending on the different challenges and learning needs that the student is facing. In the previously mentioned study for instance (Barber and Mueller, 2011), participants were diagnosed central auditory processing disorder

(CAPD) and hearing impairment, while this study focused only on the autistic population. Such differences in findings indicate the need for further research on the differences in 2e students and how different learning needs may impact gifted potential.
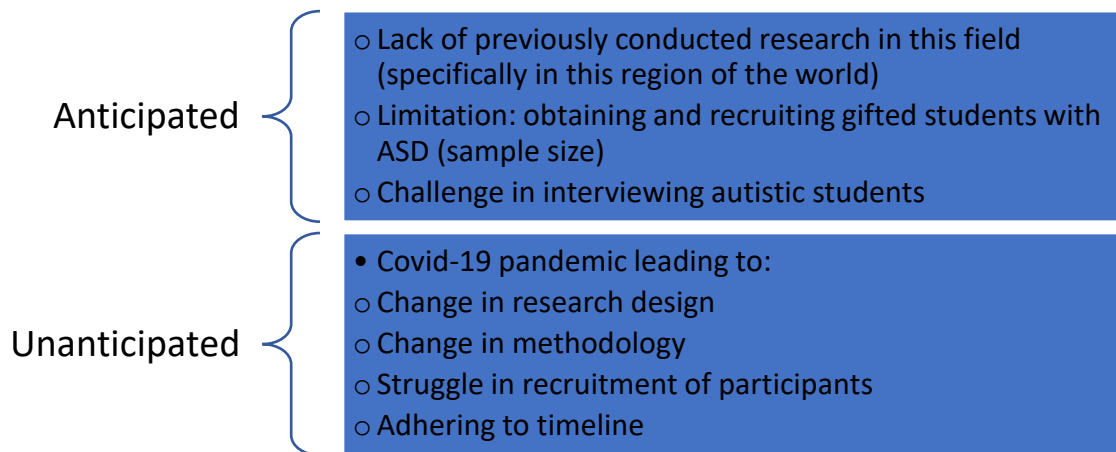
Fourthly, and most importantly, this thesis synthesised special education and gifted education - a significant contribution to the literature that bridges the gap between two fields that have historically been viewed as separate and distinct (Foley-Nicpon, 2022). This synthesis between gifted education and special education has revealed gaps in the education system that have for decades been overlooked and disregarded. Such gaps and areas of improvement have been presented in this thesis on the founding principle that students with exceptional abilities may also have unique learning needs that calls for an individualised learning approach. While literature has generally presented 'best practices' in special education (with an increased emphasis on autism in recent years), there has been limited research conducted on special education combined with gifted education (particularly with a focus on autism). Hence, the contribution of this study is not only important for the development of novel teaching approaches for autistic learners identified as gifted, but it may also benefit all students by addressing the specific needs of students, regardless of whether they are identified as gifted or autisitic (Gelbar et al., 2022).

In summary, this thesis contributes to the body of knowledge in three research areas: 1) autism, 2) giftedness, and 3) twice-exceptionality. It presents novel ideologies, addresses gaps in the literature and presents recommendations on changes in educational approaches that may benefit all students. Although this study is one of the first of its kind in the region, its implications are many, and it aims to pave the way for fellow researchers to proceed, both on a local and international scale.

6.6 Limitations and Challenges

Throughout the conduct of this research, the researcher was faced with a plethora of challenges and limitations, which had a significant impact on the methodological aspects of

this study, and ultimately on the outcomes of the research. These included both methodological issues, as well as external circumstances. Figure 6.1 displays a summary of the challenges and limitations that the researcher was faced with during this study.

Anticipated
- Lack of previously conducted research in this field (specifically in this region of the world)
- Limitation: obtaining and recruiting gifted students with ASD (sample size)
- Challenge in interviewing autistic students

Unanticipated
- Covid-19 pandemic leading to:
- Change in research design
- Change in methodology
- Struggle in recruitment of participants
- Adhering to timeline

Figure 6. 1 A summary of the challenges and limitations that the researcher was faced with during the conduct of this study

Anticipated limitations and challenges

To begin with, one of the major anticipated limitations is the lack of research conducted on gifted students with ASD in the UAE, as well as studies capturing student voices in this context. As there are no previously published studies on this topic in the country, the researcher was not able to build this research based upon previous ones. Furthermore, as a young country, the UAE is still developing and continuously adapting the framework and policy for special education, particularly gifted provisions, which caused challenges for the researcher to build and base data on continuously changing policies. Despite an intensive search for a theoretical framework on twice-exceptionality with an emphasis on autism, the researcher was not able to retrieve this throughout the duration of this research. Again, due to this limited availability in the literature, the researcher struggled to build the study based upon previously published ones. Hence, the theoretical framework of this study was based on two separate 'sets' of frameworks; namely giftedness and autism.

A further limitation of this study was the recruitment of gifted students with ASD. Due to the exceptional nature and insufficient awareness of such students in schools, the researcher struggled to find and recruit the targeted sample population for this study. While approaching school management and educators to recruit such students, the researcher continuously encountered similar responses indicating that schools do not have such students enrolled. Unfortunately, as is apparent from the findings of this study (in addition to previous research on twice-exceptional students) this comes as no surprise. During the recruitment process, it became evident to the researcher that many school leaders and educators were not familiar with the concept of twice-exceptionality, nor that gifted students may exhibit characteristics of ASD, and that autistic students may exhibit traits of giftedness. Screening for potential student participants was challenging because of the inadequate awareness of this group of learners, and because none of the schools examined in this study recognized twice-exceptionality in their official school policy documents.

Aiming to increase the student sample size, the researcher modified the description of a gifted student with ASD; as insufficient understanding of the nature of such students was evident in most schools, the researcher added a brief description (in the participant invitation letter) of the characteristics of a gifted student with ASD. The phrase "gifted student with ASD" was replaced with *"a student who may exhibit social challenges (ASD) but is usually a high-achiever, thinks outside the box, usually finishes tasks earlier and like to learn on his own"*. Despite the researcher's efforts to overcome these challenges by describing the traits of this group of learners, many schools remained reluctant to participate, resulting in a limited participation of students. Thus, it is important to note that the schools explored, and participants interviewed in this study do not represent the whole country in provisions offered, nor the entire population of gifted students with ASD, and this reality may have a direct impact on generalizability of this data (Leung, 2015).

In addition to the lack of research studies conducted in this field/region and the limitation in sample size, the researcher faced certain challenges in interviewing autistic students. Due to their language and social communication challenges, autistic persons often require the use of

specific interview strategies that may aid in the comprehension of abstract language, metaphors, and open-ended questions (Cridland et al., 2015). During the interviews with the student participants, the researcher recognized that the phrasing of certain questions was ambiguous to them. To adopt 'recommended practices' (Norris et al., 2020) for interviews with autistic participants, the researcher used semantic prompting (i.e., a general prompt like 'do you enjoy school?' before asking 'tell me about your school experience'), and visual-verbal prompting, which is used to prompt participants to recall and explain events by asking who, why, and when (Norris et al., 2020). Despite the adjustments and clarification of such questions, the researcher still faced difficulties in phrasing the questions and conducting interviews in a manner that would ensure the participants comfort, understanding of questions and simultaneously obtain valid data (Harrell and Bradley, 2009).

Unanticipated limitations and challenges

The primary and foremost significant challenge that the researcher faced was the COVID-19 pandemic that was declared a global epidemic on March 5, 2020 (WHO, 2020). It is important to mention that the researcher was at this point of time in the field work stage, initiating the start of participant recruitment. As a result of this pandemic, the researcher was forced to make several changes to her planned methodological approach, ethical approval, and the overall research design of the study.

Firstly, in terms of methodological changes, the researcher had initially planned to use an innovative approach to capture student voices. This was based on the creation of an online avatar, which students would use to express their opinions and thoughts through. Students would create this avatar based on their own selection of the character (face, voice, clothes etc.) as it would represent themselves. Subsequently, students would be asked a set of questions through a different avatar, which aims to explore their views on teaching and learning, support received and recommendations. Students would be asked to formulate a script for their avatar which summarizes the questions of the research. This includes for instance their views on the support received, areas they enjoy and their perceptions of teachers and learning strategies. They would also be asked to prepare some recommendations which could be shared with educators and policy makers. The rationale for using this

approach is based on the various research studies (Housand & Housand, 2012; Periathiruvadi, 2013: Ozcan, 2016, Picard, 2009; Ali, 2019; Tynker, 2017) that have examined the use of technology and its positive effect on self-expression with gifted students, as well as autistic students. The global movement taking place in education from a 'traditional' means of schooling to more innovative approaches, which use enrichment technology and socialization for learning (Isroani et al., 2022), encouraged the researcher to plan for an innovative method of research. However, due to the COVID-19 pandemic and its many restrictions (e.g., social distancing rules, the closing of schools and other constraints) it was not possible to conduct the methodology initially planned for with the student participants. Moreover, as school visits were not permitted to external visitors, it was deemed appropriate to alter the research approach to an online video call interview, in which students answer questions directly rather than through an avatar. As a result, modifications were made to the student interview questions (that was initially a script), as well as to the initially planned research design.

The COVID-19 pandemic has had a great impact on numerous areas relevant to this research. One of the greatest impacts is the change in educational structures that took place during the year 2020. In schools, life was far from 'normal', as was the case with universities, organisations, and institutions. The effect of COVID-19 resulted in the closure of physical (on-site) learning in schools and forced a transition to virtual learning. Due to the extreme and unanticipated changes that took place in the educational structure, both school management and educators had their hands full with educational reform, all while coping with mental and physical health concerns. As a result, the researcher observed a very high no-response rate from participants who were approached. Although 65 schools were contacted by email, only three of them responded and agreed to take part in the study. Attempting to increase the sample size, the researcher followed up with the previously contacted candidates and nonresponding schools. Some of these reverted to the researcher justifying their refusal to participate because of the "chaotic mess" schools are in, as phrased by one candidate. To tackle this issue, the researcher refrained from contacting school administrators/management and instead approached the targeted sample population (i.e., educators and school leaders) through LinkedIn. To include the same schools that were initially contacted, the researcher ensured to write the name of the schools in the search filter. This way, several candidates from the targeted schools were contacted. Ultimately, three educators contacted through

LinkedIn agreed to participate, leading to a total of six educators and leaders who participated in the semi-structured interviews. Although these participants agreed to participate in the research, they refused to share samples of students' work or relevant documents due to confidentiality. Undeniably, this was an additional limitation that prevented the researcher from including such records in the document analysis. Furthermore, regarding the survey, the same challenges were observed, making data collection incredibly challenging and resulting in a smaller sample size than planned.

One final challenge faced by the researcher was adherence to the timeline that was set from the outset of the study. This was caused mainly by the unanticipated circumstances that impacted the researcher on a variety of levels. Firstly, the researcher had set a cutoff time for recruitment of participants that was exceeded due to the limited sample size available (as previously discussed). Secondly, the researcher fell ill at several instances during the research journey, which in turn caused a challenge in adhering to the overall time plan. Thirdly, the field work process was significantly more time-consuming than initially planned, as participants interviews were re-scheduled several times for various uncontrollable reasons. Furthermore, the pilot study led to several changes that were time-consuming for the researcher in terms of re-designing instruments, data collection and data analysis. Finally, obtaining informed consent from both schools and parents of the students took extensive time; this was the case as well with the ethical approval from the university that was re-submitted several times for final approval.

6.7 Future research

Based on the findings of this research, several suggestions for future research are proposed. Firstly, this study was the first one conducted of its kind in the UAE, examining the experiences of gifted students with ASD in the mainstream school system. As the sample size of the study was limited, it is recommended for future researchers to proceed in this path and conduct a similar study to compare findings that may lead to different recommendations. Specifically, it would be valuable to obtain a much larger number of student participants who are identified as gifted with ASD and note similarities or discrepancies in their responses

from this study. Moreover, it is significant for future researchers to expand the participant demographics, to include school leaders and educators who work through different curricula.

Secondly, as the results demonstrated, there was a significant challenge in the identification of gifted students with ASD as many educators were unable to recognise that the disability and giftedness co-exist together, and not exclusively (Baldwin et al., 2015). As these exceptionalities often interact, it would be beneficial to examine these overlapping attributes and comparisons between the characteristics of learners diagnosed with ASD and those identified as gifted. A limited number of studies (Cederberg et al., 2018; Luor et al., 2021) have attempted to examine this, and found that learners diagnosed with ASD are more likely to be identified as gifted than those classified as gifted being diagnosed with ASD. Accordingly, it would be interesting to investigate whether learners identified as gifted may in actuality exhibit characteristics of ASD. Such research may pave the way for novel exploration that may ultimately shape new educational frameworks for these exceptional learners that is based on both gifted education and special education.

A further area of need to be researched is the socio-emotional experiences of these gifted students with ASD. As apparent through educators' responses, inadequate focus was placed on the social development of these exceptional learners. Educators often focused on the academic performance of the student, overlooking the social school experience (Ayoub & Aljughaiman, 2016). In line with this notion, findings from student responses demonstrated that students felt overwhelmed, misunderstood, and anxious. This aligns with several other studies examining the school experiences of twice-exceptional students (Foley Nicpon et al., 2011; Reis & Colbert, 2004; Vespi & Yewchuk, 1992) who found that students were flooded with negative experiences throughout their school years. Therefore, it is highly recommended to conduct an in-depth investigation on the social development of the gifted student with ASD and practices taking place in school settings, as this may ultimately lead to recommendations on how to foster a comprehensive development of the student, focusing on their socio-emotional well-being.

A further important area of recommended research is the examination of autistic savants. As described in the previous chapters of this thesis, the autism spectrum consists of various degrees and characteristics. For this thesis, the emphasis was placed on the 'milder' cases with ASD that tend to go unnoticed in schools due to the masking effect and their 'hidden

disability'. However, it is crucial to mention that talent and potential has been reported in the more profound cases of individuals with ASD, in which the person may exhibit complete lack of communication, adaptation skills and independency, while also displaying an exceptional talent, a phenomenon referred to as 'savant syndrome; (Treffert, 2009). Due to the extreme challenges such individuals face in everyday life, these children are often segregated and institutionalised rather than included in mainstream school settings (Hughes et al., 2018; Roberts & Simpson, 2016). For this reason, and due to the evident communication challenges, this group of children were not included in this study. However, one significant area of research would be to investigate the perspectives of this group of children using different research techniques and observing if the 'level of autism' and extent of challenges faced daily plays a role in perspectives. This would ultimately assist in developing novel frameworks that cater for the needs of learners who display profound challenges (in daily living skills), rather than only considering those with milder needs.

A final and vital area of research that is recommended based on the results of this study is the examination of educators' hesitancy and uncertainty that was displayed throughout the interviews and survey. Educators expressed confusion, uncertainty, and doubt when seeking to understand and support these twice-exceptional students in school. One future project that may address educators' experiences of feeling lost, may be to use discourse analysis to examine their own interpretations and lived experiences; indeed Jankowicz (2005) defined discourse analysis as:

"The way in which your respondents draw on differing interpretive repertoires depending on their interpretation of the context in which your interview takes place. The technique focuses on the way in which language is used in given settings, and in a discourse analysis, your task is to identify the context; the various interpretive repertoires; and attempt a matching of one to the other, to arrive at an understanding of the function, from the point of view of your respondent, of the different stories being told." (p. 229)

As discourse analysis is particularly relevant when hearing participants' own narrative and perspective (Jankowicz, 2005), capturing educators' voices and experiences through discourse analysis may provide a comprehensive understanding of the areas which policymakers and leaders need to place emphasis on to enhance the overall educational framework for both educators and students.

Fundamentally, it is essential to note that the domain of twice-exceptionality, in particular with a focus on ASD, is under-researched and in its primary stages on a global context (Gelbar et al., 2022). It is considered a novel research domain that is yet to be investigated through different lenses and across different schools of research. Thus, it is safe to argue that further research ought to be conducted not only in Dubai, but on a global scale to define, and set out the appropriate legislations and educational provision in place for this group of exceptional learners.

6.8 Towards an ending

This study sought to offer an understanding about the provisions on offer, educators' perspectives and the lived experiences of gifted students with ASD in Dubai mainstream schools. Although the main aim was to examine provisions and student perspectives, the findings pointed to a need for a different and perhaps more important area of research, which was the identification of such students. In alignment with the literature on twice-exceptional students, the results of this study revealed a striking insufficiency in educators' understanding of such learners. The dual exceptionalities caused confusion for educators in understanding not only how to support but also in comprehending the nature and needs of this group of learners. In the National Association of Gifted Children Conference in Denver, Temple Grandin (a prominent autism advocate who identifies herself as twice-exceptional) stated that disorders are "milder forms of genius" (Grandin, 2012, n.p.). She argues that too many smart children are being labelled with autism and that "teachers don't know what to do with these smart kids" (Grandin, 2010, n.p.). This comes as no surprise as literature has for decades presented the difficulty in identifying gifted students, as well as in diagnosing autistic students. Combining these two complex traits will undoubtedly lead to further difficulty in the classification of such students. This difficulty in identification was explained by scholars (such as Donnelly & Altman, 1994; Neihart, 2000; Cash, 1999; Huber, 2007) who argued that individuals with ASD and gifted individuals share many common characteristics, such as obsession to detail, divergent thinking, verbal/language discrepancies, uneven development, and memory differences – leading to the ongoing debate to answer the question "is it autism or giftedness?"

To summarise the perplexing debate on twice-exceptionality, so authors (Freeman, 2005) argue that both giftedness and disability are subjective terms that are constituted differently across cultures and societies. Einstein was poor in foreign language and spelling, while the great physicist Richard Feynman, did poorly in some subjects (Grandin, 2001). Yet again, emphasising the need for change in the education of these exceptional learners

(Baum and Owen, 2003) quoted:

"Too often the strengths and interests of Gifted-Learning disabled students are either unrecognised, seen but ignored, put on hold, or are irksome because they are the wrong talents for conventional school achievements."

Writing about social justice for people with disabilities, Nussbaum (2009) argued that 'doing justice to people with physical and mental impairments' (p.1) was an unsolved problem of social justice that would require 'a new way of thinking about who the citizen is' (p.2). This new way of thinking would require imaginative courage that could be well-developed by the twice-exceptional individual herself. A key conclusion to be drawn from this research is the importance of the individual's own input in any systems developed for the enhancement of the educational framework of any student. Indeed, many gifted individuals who are also diagnosed with ASD have proven the impact that can be achieved on a greater level when offered the chance to bloom and share their innovative minds with the world (Foley-Nicpon et al., 2021; Baum et al., 2021; Gaber, 2022). Some of these prominent individuals who are also some of the world's most influential people, include Albert Einstein, Dan Aykroyd (actor and film writer), Bill Gates (Co-founder of the Microsoft Corporation), Elon Musk (Entrepreneur), and Steven Spielberg (Director).

In summary, reform and change are a time-consuming process. There is yet far to go and extensive work to be done before the education system can change and accommodate for this group of exceptional learners. This thesis demonstrated the accommodations required for these students, and revealed the substantial level of support needed for educators to understand this group of learners, and to increase their confidence in fostering students' abilities while catering for their needs. Marginalized and stereotyped, students of this research revealed a perspective that has not been previously presented in the literature. Although this thesis is merely a small step on a long journey, it is hoped to pave the way for future researchers and attract the attention of policymakers and stakeholders to consider educational reforms for this group of exceptional learners who can ultimately act as a key factor in the economic and innovative prosperity of the country. As (Tetreaulty, 2019) quotes:

"*Allow space and time for the bright mind to break free from the ordinary, experience the extraordinary, and then awaken to life*" (p. 51).

6.9 Personal reflections and gains

Conducting this study has been an insightful journey with many unanticipated difficulties and roadblocks. Carrying out this research through a global pandemic that has impacted, and continues to impact, the world in many ways, has been a unique experience with both challenges and achievements. During the COVID-19 pandemic, the world was (and is still) suffering from increased physical and mental health issues that was also experienced by the researcher at several stages of this study. During the PhD journey, the author has been through major life-changing events that has surely impacted her ability to conduct this thesis both in a positive and negative manner. Nevertheless, the researcher was able to work around challenges finding innovative solutions to manage methodological obstacles, which have been presented in detail in the Discussion chapter, through the support of supervisors, family members and friends. These challenges have assisted the researcher in thinking creatively, being solution-oriented and overcoming unanticipated barriers. Even through challenging times, such solutions have aided the researcher on a professional level to overcome work challenges that were also impacted by external factors related to the pandemic.

On an academic level, being the first researcher in Dubai to capture the voices of gifted students with ASD in schools has been a very rewarding journey, which has expanded and increased the researcher's knowledge in many regards. These include knowledge of research methods, researching sensitive groups, self-awareness in the research process, and most importantly on the topic of giftedness and autism. Despite the many limitations and challenges, the researcher felt grateful and privileged to communicate with students on a direct basis and hear their perspectives about their school experience. This increased the researcher's level of self-confidence in conducting such sensitive types of interviews, and it changed the pre-assumptions that were present prior to conducting the interviews, teaching the author to conduct research with an open mind. The trust placed in the researcher by these students and educators is a key reason for the researcher trying to inspire change for the enhancement of their school experiences.

On an academic and personal basis, the author benefited from the research process in regard to time management. At several stages of exploration throughout this study, unanticipated

changes occurred which caused deviation from the initial time plan. These challenges occurred specifically in the initial stages of the COVID-19 pandemic and caused delays in both ethical approvals, as well as participant recruitment. This issue was dealt with by re-adjusting the timeframe of the research and committing to the set plan through setting daily and weekly goals. Despite the distress experienced by the researcher throughout this journey filled with challenges and obstacles, it has led to a great contribution in time-management skills which will benefit the author on both a personal and professional level.

On a final reflection, the PhD journey has been a tale of grit, dedication, determination, and devotion. This PhD has been completed on a part-time basis, within the most transformative period of the researcher's life. Throughout the five years of this journey, the researcher has lived through a global pandemic, shut down her business, moved to another country, lost her job, and lost close family members due to illness. The PhD journey has not only been a tale of perseverance, but also a tale mixed with sorrow, tears, joy, success, and celebration. The short lesson from this remarkable journey can be summarised by the quote of Hiral Nagda:

"Challenges seem like they are breaking you. However, in truth, they are making you into the most limitless and versatile version of yourself."

7. REFERENCES

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8. APPENDICES

Appendix A: Educator's Survey Questions

Provision for gifted students with ASD:

1- How would you define a gifted student with ASD? Select only one.

o A student who is identified as gifted and talented in two areas or more

o A student who is identified in two or more categories of identification under special education criteria.

o A student who is identified as gifted and talented in one or more areas and is also diagnosed with an autism spectrum disorder.

o I don't know

2- Do you teach any student identified as gifted with ASD?

( ) No

( ) Yes

( ) I don't know

3- Have you been made aware of the gifted students with ASD in your school/class?
( ) No
( ) Yes
If yes, what?_____

4- Have you received any training on gifted students' provision?

( ) No

( ) Yes

5- Does your school provide Individualized Education Plans (IEP) for gifted students with ASD?

( ) I don't know

( ) No

( ) Yes

13- Does your school have an identification process for gifted students with ASD (or twice-exceptional students)?

( ) I don't know

( ) No

( ) Yes

If yes, please describe the process?_____

14- Does your school provide support for gifted students with ASD (or twice-exceptional students)?

( ) I don't know

( ) No

( ) Yes

If yes, please describe the range of support they receive?_____

15- Does your school have a policy for gifted students with ASD (or twice-exceptional students)?

( ) I don't know

( ) No

( ) Yes

16- Do you offer any type of support to students in your class who have been identified as gifted with ASD?

( ) No

( ) Not applicable

( ) Yes

If yes, please give details about the support?_____

17- Have you been involved in the developing of an Individualized Education Plan (IEP) for any of your students?

( ) No

( ) Yes

18- Please select the support services that are offered in your school when working with gifted students with ASD. Check all that apply.

- o Curriculum modification/adaptation
- o Individualized Education Plan (IEP)
- o Exam modification
- o Grade/subject advancement
- o Grouping
- o Differentiated instruction
- o Others, please specify _____

I-   Educators' awareness of gifted students with ASD:

18- Gifted students with ASD require the same provision programs as gifted students.

( ) I don't know

( ) No

( ) Yes

19- Gifted students with ASD have the same needs as special education students.

( ) I don't know

( ) No

( ) Yes

20- All gifted students with ASD have the same educational needs

( ) I don't know

( ) No

( ) Yes

21-Please select the areas that you think gifted students with ASD would exhibit difference from their peers. Check all that apply.

o Academic difficulties

o Academic achievement

o Social difficulties with peers (friendships)

o Social difficulties with adults

o Behavioral difficulties in the classroom

o Performance on class work and tests

o I don't know

o Others, please specify _____

22- How confident are you that you would be able recognize/identify a gifted student with ASD?

o I am not confident at all.

o I am not very confident

o Neutral

o I am somewhat confident

o I am very confident

23- How confident are you that your current understanding of gifted students with ASD enables you to provide appropriate support for such students?

o I am not confident at all.

o I am not very confident

o Neutral

o I am somewhat confident

o I am very confident

24- How familiar are you with the UAE and Dubai guidelines for special education services?

- No familiarity
- Little familiarity
- Some familiarity
- Specific familiarity

25-How familiar are you with UAE and Dubai guidelines for gifted education?

- No familiarity
- Little familiarity
- Some familiarity
- Specific familiarity

26- Would you like to share any other information regarding provision offered for gifted students with ASD?

1. Tell me about your background and qualifications. Which curriculum are you teaching?
2. From your experience, tell me what you know about learners who are gifted and diagnosed with autism.
3. Do you currently have or previously had students categorized as gifted with ASD?

If yes, continue to below questions.	*If no, continue to below questions*
What are the policies/procedures that you follow in the school regarding such students	Do you think you have ever come across such students? Why do you think so? What are the characteristics that made you recognize your this?
What are the identification tools/practices used to identify gifted students with ASD in your school?	Do you think your school is ready to take on such students? Why/why not?
What are the services/program your school offers for this group of students?	How do you identify student giftedness in the school? How do you identify ASD in school?
Does your school offer differentiation/IEP/curriculum modification etc.? please elaborate	Do you offer provision for students with ASD? Do you offer provision for gifted students?
Does your school offer any type of socio-emotional support to such students? Such as counseling, support groups etc.	Does your school offer any type of socio-emotional support to such students? Such as counseling, support groups etc.
What other factors guide/influence you when organizing learning for this group of learners?	What are the services/programs your school offers for gifted students? What are the services/programs your school offers for students with ASD?
What are the biggest obstacles and challenges you face in providing support for this target group?	Does your school offer differentiation/IEP/curriculum modification etc.? please elaborate
Describe any training/professional development that you have received on special education provision including Gifted and Talented.	Describe any training/professional development that you have received on special education provision including autism
Describe any training/professional development that you have received on special education provision including autism	What are your recommendations for developing provisions of gifted students with ASD in school?

What are your recommendations for developing provisions of gifted students with ASD in school?	

Appendix C: Student Interview Questions

14. What are you gifted in/very good at?

15. How did you know that you are gifted?

16. Tell me about the type of support to help you that you receive in school. Is it different from your classmates or the same? Tell me more.

17. Do you have any individualised/special plan (IEP) or special curriculum that you follow? Tell me more about the work you do and assignments.

18. In what ways do you find the support that you receive in school helpful?

19. Can you tell me about any support that you receive in school that is not helpful?

20. If you do have different work from your classmates, how do you feel about this?

21. Do you receive any socio-emotional support in school like counselling, social groups, 1:1 support? If yes, how do you feel about this?

22. Who is encouraging you to do well in school? In what ways do they encourage you?

23. If you face challenges in your school, can you tell me about some of them?

24. How do you wish to be supported in your school? What would you like to see more of and less of?

25. What would you recommend to teachers and others in your school to develop your gifts/talents?

26. What would you recommend to teachers and others in your school to overcome the challenges that you face in school?

Appendix D: An Excerpt of Interview With S1

On student awareness of their giftedness:

S1 (03:58):

No, it turns out a lot of it was already at the back of my head. You know, a lot of the times I underestimate the fact that like memory is like really a really good skill to have. And I try my best to like, like train, like change my memory, practice my memory. Like sometimes I remember parking lot numbers. Like when you go park somewhat, I remember the parking lot number. Like I have a parking lot numbers that I remembered for years now. So I always try to focus on that. Cuz like memories are really good as it like, you know, I'm always trying to get and I always try my best to get work done. And like, you know, usually teachers prepare me for the fact that I'm able to get work done fixed quickly and I'm able to focus.

Alia (interviewer) (04:35):

Oh, that's really cool. So, would you say one of your gifts is your memory?

S1 (04:39):

Yeah, I think, yeah, no, I think it's just like my memory and like maybe recognizing patterns as well. Like I'm really good at recognizing patterns and like things kind of, I feel, I know where to explain. They can't just snap. So like if I bring, like, if I'm finding something out in class, once I know it, it kind of just snaps and it sticks with me.

On negative school experiences:

S1: (07:47):

So sometimes when I feel I'm like, when I'm in a bad situation and I feel really uncomfortable, I don't look at teachers or I talk in a very like emotional manner, just like, no, no, no, no, no. You know, sometimes, and she, I was like starting to slouch and you know, and she's, she, she thinks I had that attitude and she's like, look at me when I'm talking. I was telling I'm like, well, miss, miss, miss. And I was trying to say that I had a problem, but I wasn't able to get it out. And I just said, I'm sorry, it won't happen again.

Appendix E: An Excerpt of Interview With E4

On identifying student needs:

E4:

Yeah I work with the student directly, actually all of his academic ==(3:16)== he don't need any support actuallyy but aaah behavioral ==(3:22)== he need support.

So aah they appointed one LSA for him and ummm aaah when it fit, somebody should be there to take care of him, he is perfectly ok mashallah he is perfectly ok in the reading, writing and all academic parties all at the languages and all it's ok but I think aah he is good in English I checked the other languages maybe they starting the other languages right?

On school provision:

Actually, till this time we don't have this only the one child we don't have the policies for gifted with autism, we have gifted policy for normal students we have but not combined with autism.

We are giving aaah all re-talk the balance also he is mmm very gifted in reading we're giving some books and we're giving online e-books also and providing books, trended books also for him to read, aah and a comprehension also.

He don't have IEP for him, because he's perfectly ok for the academic level

Educators Training

No, from school there's no training but in between I did a (15:55) I did RBT in between I did because I want to know much more about autism, for this child I actually I did this RBT course, haha, actually, this's aah otherwise I can't handle this case aah like aah I'm not much aware of autism and challenges and, or the steps so I did RBT course

Appendix F: Ethics Approval

University of Glasgow

Research Ethics System   Logged in as: Alia El Naggar   Home   Log out

Create Draft Application

Download Templates

My Tasks (0)

My Applications

- Draft

- Active

- Completed

Ethics Committees

Help

My Completed Applications

The outcome of your application is displayed in the Current State column below. If you require further information or advice please contact your ethics administrator - details are available via your Ethics Committee Webpages - these can be accessed from the Ethics Committees menu item on the left.

Click on the **Application Number** to view the application details and documents.

Application No.	Title	Committee	Current State
400190140	The provision on offer for gifted learners with Au...	College of Social Sciences	Approved

(Teacher) Participant Information Sheet

<u>Title of project and researcher details</u>

Title: The provisions on offer for gifted learners with Autism Spectrum Disorder (ASD) in Dubai mainstream schools: capturing student perspectives.

Researcher: Alia El Naggar

Supervisor: Margaret Sutherland, Eman Gaad, David Simmons

Course: PhD in Education (Research)

You are being invited to take part in a research project into provisions offered in Dubai mainstream schools for gifted learners with Autism Spectrum Disorder (ASD).

A research project is a way to learn more about something. You are being asked to take part because you are a teacher/staff member in a Dubai mainstream school, and your input is of great value.

Before you decide if you want to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the information on this page carefully and discuss it with anyone you deem as necessary. Ask me if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What will happen if you take part

The purpose of this study is to explore the provisions on offer for gifted students with ASD in Dubai mainstream schools. A great part of this study aims at capturing student voice and perspective, as well as their recommendations on school provisions.

If you decide to take part I will ask you some questions about the type of support offered for gifted students with ASD in your school and your experience in working with such students through an online survey/interview. This will take about 10 - 20 minutes.

If you are selected for a virtual interview, I will ask you some further in-depth questions about the provision offered for gifted students with ASD through an online platform. I will also ask you more about your personal opinions and viewpoints on this matter. You do not have to answer any questions that you do not want to. This will take about 25 - 45 minutes. I will record your answers on through the online platform so that afterwards I can listen carefully to what you said.

You do not have to take part in this study, and you can withdraw from the study at any time if you decide to take part. If, after you have started to take part, you change your mind, just let me know and I will not use any information you have given me.

Keeping information confidential

I will keep the information from our interview in a locked cabinet or in a locked file on my computer. When I write about what I have found out, your name will not be mentioned. If you like you can choose another name for me to use when I am writing about what you said. No-one else will know which name you have chosen.

However, if during our conversation I hear anything which makes me worried that you might be in danger of harm, I might have to tell other people who need to know about this.

The results of this study

When I have gathered all of the information from everyone who is taking part I will write about what I have learned in a thesis, which is a long essay, which I have to complete for the course I am studying on. This will be read and marked by my teachers at university. I will tell you and the other participants who have taken part what I have found out about your input on provisions on offer for gifted learners with ASD. A written summary of results to all will be sent if requested. I will destroy all of my notes and recordings when the project is finished.

Review of the study

This study has been reviewed and agreed by the College of Social Sciences Research Ethics Committee, University of Glasgow

Contact for further Information

If you have any questions about this study, you can ask me, xxxxxxxx@student.gla.ac.uk or my supervisor, Margaret.Sutherland@glasgow.ac.uk or the Ethics officer for the College of Social Sciences. Muir.Houston@glasgow.ac.uk

Thank you for reading this!

University
of Glasgow

College of Social
Sciences

Consent Form

Title of Project: The provisions on offer for gifted learners with Autism Spectrum Disorder (ASD) in Dubai mainstream schools: capturing student perspectives.

Name of Researcher: Alia El Naggar

I confirm that I have read and understood the Plain Language Statement/Participant Information Sheet for the above study and have had the opportunity to ask questions.

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.

I consent / do not consent to interviews being audio-recorded.

I acknowledge that participants will be referred to by pseudonym.

I acknowledge that there will be no effect on grades/employment or impact on work relations

arising from my participation or non-participation in this research.

Notes:

- All names and other material likely to identify individuals will be anonymised.
- The material will be treated as confidential and kept in secure storage at all times.
- The material will be destroyed once the project is complete.
- The material may be used in future publications, both print and online.
- I agree to waive my copyright to any data collected as part of this project.
- I understand that other authenticated researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.
- I understand that other authenticated researchers may use my words in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form

I agree to take part in this research study   ☐

I do not agree to take part in this research study   ☐

Sign as appropriate

Name of Participant ………………………………………… Signature
…………………………………………………………..

Date …………………………………………

College of Social Sciences

Date:

Consent Form

Title of Project: The provisions on offer for gifted learners with Autism Spectrum Disorder (ASD) in Dubai mainstream schools: capturing student perspectives.

Name of Researcher: Alia El Naggar

I would like to hear about your experience in school.

- You do not have to answer any questions you do not like.

- You can stop talking to me at any time.

Do you want to talk to me about your school experience and recommendations?

Please put a circle around your answer.

Can I record our chat?

Please put a circle around your answer.

Can I tell other people what you think? I will not tell them your name.

Please put a circle around your answer.

Please write your name in the box below.