



Review Article

At a glance of twice-exceptional children on psychological perspective¹

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Abstract

Description of twice-exceptionality is a relatively new term in education, counselling, and psychology. Twice-exceptional learners are students who, despite having high abilities in some areas, show disabilities in many aspects of learning, which often causes the disabilities of these individuals to hide their high abilities. A defect in cognitive processing often causes a deficiency in auditory and visual processing and reduces their slow processing of information and has a negative impact on their academic achievement. It is very difficult for them to prioritize and plan. They are easily distracted and experience problems when concentrating and maintaining attention. It is difficult for them to think in the form of a linear model and they may not even be able to follow their desired path. Some of the other cognitive and interpersonal characteristics of the twice-exceptional student from a psychologically perspective are: High level of energy reasoning and problem-solving, High energy level, high advance in divergent thinking and extremely creative, High level of reasoning and problem-solving abilities, Superior verbal on the other hand, Difficulty relating with peers, weak social skills, avoided from peers and does not attend in school activities, Highly sensitive to criticism, negative Perfectionist, which means who is scared to risk making a mistake, suffering from High levels of anxiety, Easily frustrated, be exhausted. Eventually more prevalence of Anxiety and depression in them. Thus, the present study aims to define the term twice-exceptionality and introduce a Glance of Twice-Exceptional Children on Psychological Perspective.

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Introduction

In recent years, a relatively small but constant stream of research has emerged in the field of gifted students with the characteristics of twice-exceptional children. The presence of this group of students in schools is one of the most difficult problems faced by teachers since there are always hidden effects by one or both of these students' exceptional capabilities (Willard, Weber, Morrison & Horgan, 2013).

For many years, parents and teachers have been puzzled and confused about students who have significant learning strengths in some cases and significant weaknesses on the other. It seems that a definite point of view cannot be taken for these individuals: Are these people really gifted or do they have learning disabilities? Ultimately, the controversy ended and teachers are now calling these students "twice-exceptional". Currently, instead of using evidence related to poor learning in these individuals to prove that "they are not really talented", these students' teachers have learned how to cover up their weaknesses and provide them with necessary services by creating opportunities similar to those offered to other gifted students (Chivers, 2012).

These students lose the necessary skills for success in school even if they have the characteristics of gifted students. (Trail, 2010). Twice-exceptional learners' academic performance can be affected by problems such as reading, expressive language, writing and math skills. Defect in cognitive processing often causes hearing and visual processing

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deficiencies. Their low processing speed reduces information processing and makes a negative impact on their academic achievement (Trail, 2010). Lack of organizational skills leads to messy desks, backpacks and shelves and problems when doing the assignments. Prioritizing and scheduling are very difficult for them, making them unable to complete their assignments on time. They are easily distracted and experience difficulty in concentration and attention maintenance. These students' difficulty with fine and gross motor coordination is evidence of poor handwriting and lack of coordination of their motor actions during exercise. Many twice-exceptional learners experience short- and long-term memory deficits, making it difficult for them to remember math facts, lesson names and grammar and spelling rules. Further, they find it difficult to think as a linear model and may not even be able to follow their desired path (Trail, 2010).

Definition of Students with Disabilities

In discussing children with disability, because of the inconsistent and contradictory use of terminology, problems have been created in the same way as the term "giftedness". The literature on disability has been developed by discussing different methods of understanding and comprehending disability and impairment (French & Swan, 2008), definition of these terms and negative assumptions which underscore perceptions of children with disability (Priestley, 2001; Singh & Ghay, 2009).

The assumptions identified in the research literature on contemporary societies' perceptions of children with disabilities include: These children are classified as "sufferers", "silent" and "voiceless" (Corker & Davis, 2000) and are often deprived of agency because they are able to choose (Singh & Ghay, 2009). Godley and Northum (2005) stated that disability research is dominated by quantitative methods, focusing more on "psychopathology of disability" rather than "psychology of disability" (Singh & Ghay, 2009).

Godley and Northum (2005) assume that when thinking about people with disabilities, instead of focusing on the shortcomings, it is better to see disabled children as social actors, controllers and negotiators of their complex identities in a disabling environment (Singh & Ghay, 2009: 132). Under the Individuals with Disabilities Education Act (IDEA) of 2004 (Office of Special Education Programs, 2006), disability is broadly defined in relation to a unique child with the following characteristics: Children with disabilities are those who suffer from mental retardation, hearing impairment (such as deafness), speech or language impairment, visual impairment (such as blindness), serious affective disorders, orthopedic impairment, autism, brain injury and any health disorders, specific learning disabilities, deafness-blindness or multiple disabilities and also those who need special education and related services for reasons associated with these issues (Ronsley-Pavia, 2015).

Definition of Gifted Students

Researchers do not agree on a single definition of giftedness. In short, giftedness has become a vague concept. Matthews and Folsom (2009) concluded that identifying and expressing particular areas in which the child is gifted makes better sense than to generally say that the child is gifted; this may be why the "intellectual" dimension is often added in recent publications. However, what is considered as giftedness in recent scientific literature goes beyond what is obtained in a standard IQ test (Mathijssen, Feltzer & Hoogeveen, 2018).

Twice-Exceptionality: Definition and Concepts

The term twice-exceptionality probably derives from a similar concept in medicine, i.e. "comorbidity". In medicine, comorbidity refers to patients who have a multiple list of diseases (e.g., kidney disease) and have one or more other diseases in addition to the indicator disease, such as asthma, migraine, rheumatoid arthritis, breast cancer, colon or prostate cancer or diabetes. Comorbidity is a diagnostic phenomenon that is often studied in psychiatry as well as general medicine. In fact, in psychiatry, comorbidity is a premier challenge facing mental health professionals. There are three reasons for the interest in comorbidity in medicine: Comorbid disorders are very common in the general population; people with comorbid disorders have less favourable outcomes and comorbidity can enable us for the etiology, observation, and tracking of the course and treatment of any medical illness and psychiatric disorders that are on a patient's list, which considering this case for twice-exceptional students can significantly help in diagnosing and delivering better services (Pfeiffer, 2015).

The National Commission on Twice-Exceptional Students (NCTS, 2020) provided the following definition, in one part of which it is stated: "Twice-exceptional learners are students who enjoy the ability to achieve high success or creative productivity in one or more areas and at the same time show one or more disabilities identified according to federal or state criteria. These high abilities and disabilities make up a unique population of students who may fail in high school performance or in some specific tasks. Educational programs should identify both the high ability to

progress and educational and social deficiencies of this population of students and provide them with necessary services accordingly (Ronsley-Pavia, Grootenboer & Pendergast, 2019).

In fact, two issues hinder the identification and provision of the right conditions for twice-exceptional students' needs. First, the disability may be masked/concealed by their exceptional ability and second, the disability may hide their ability. When this occurs, there is a concern that neither the abilities nor disabilities of these students will be recognized and addressed, resulting in uncertainty about student efficacy and performance being lower or higher than expected (Bannister-Tyrrell et al. 2018).

Historical View of Twice Exceptionality Studies

The term of twice-exceptionality was developed by James J. Gallagher (2004) who intended to separate a new group of gifted or intellectually talented people with disabilities. Research on twice/dual exceptional children was officially launched in 1981 when experts from gifted education and special education were invited to attend a colloquium on this subject held by John Hopkins University. Since then, many theoretical and empirical studies have been conducted and new methods and tools have been developed to identify and meet the needs of these students (Buică-Belciu, & Popovici, 2014).

Giftedness is characterized by high cognitive abilities that exist alongside disabilities in processing or other disabilities that limit the expression of high abilities (Kalbfleisch, 2013). In reference to the problems associated with the definition of twice-exceptional status, Kalbfleisch (2013) maintained that there is little information about its prevalence or incidence. Identifying these people is often complicated because these students' strengths sometimes mask their weaknesses. Besides, specific measures/strategies to identify these people have not been developed. Moon and Rees (2004) provided a list of the characteristics of twice-exceptional students, which limited the circle of identification of these people. Among these characteristics are learned helplessness, hopelessness, low motivation, perfectionism, low self-esteem, and emotional, social or behavioral problems (McCallum et al. 2013).

The field of twice exceptionality (2e) has been developed by merging two basic issues: Special education and gifted and talented education. Over the past 50 years, researchers and educators in both educational sectors have established a solid theoretical foundation, which enables teachers to develop approaches that help twice-exceptional students grow as creative and productive adults. The timeline for this history of twice-exceptional people has been provided in Figure 1 (Baldwin, Baum, Pereles & Hughes, 2015).

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Types of Twice-exceptionality

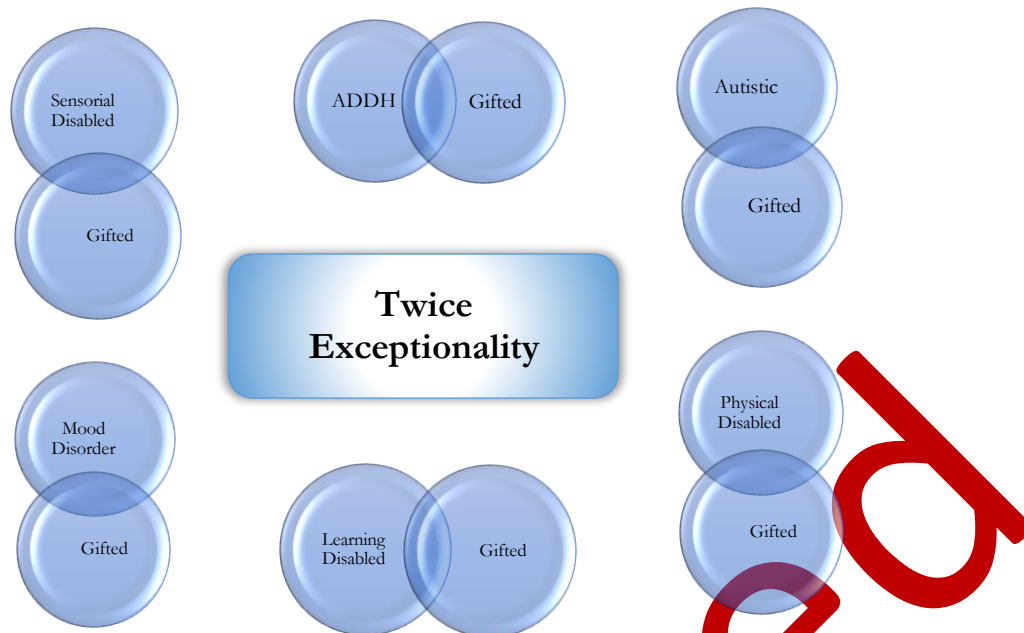


Figure 1.

Type of Twice Exceptionality

Gifted Students with Physical Disabilities: In most cases, physical disability and cognitive ability are unrelated. Students who have even the most severe physical disabilities may fit into the group of gifted individuals and may need appropriate educational services (Willard-Holt, 1994). Stephen Hawking ([watch film](#)), a Nobel Prize-winning physicist, who had ALS was an example of a physically disabled person who was also a gifted person.

Gifted Students with Sensory Disabilities: Traditional learning environments are increasingly paying more attention to gifted students with sensory disabilities (i.e., deaf, blind) and commit themselves to providing regular training programs that include both the gifted and the disabled. Helen Keller ([watch film](#)), a deaf and blind person, is an example of an individual with sensory disabilities and giftedness.

Gifted Students with Asperger Syndrome: Asperger syndrome is usually considered a disorder that falls into the autism spectrum and is characterized by social and language disorders (hence, it is often referred to as high-functioning autism). Aside from deficiencies in social performance, these students are more eager to acquire advanced knowledge and skills in various fields. Dr. Temple Grandin ([watch film](#)), an assistant professor of Animal Science at Colorado State University and a successful author and animal facilities designer, wrote of his experiences as a person with autism.

Gifted Students with Emotional or Behavioral Disorders: A review of research literature on the socio-emotional aspects of gifted individuals shows that these students experience emotional and behavioral problems as much as their non-gifted peers (Fidler, 1999; Nihart, 1998; Robinson, Rees, Nihart & Moon, 2002). However, in many cases, their potential abilities remain unknown because only their destructive behaviors are focused. John Nash ([watch film](#)) Jr., Princeton University professor and Nobel Prize-winning mathematician, who struggled with schizophrenia is an example of a gifted person with an emotional disorder.

Gifted Students with Attention Deficit/Hyperactivity Disorder: Gifted students with ADHD have difficulty concentrating their attention, completing their work, following instructions and organizing their school materials (Kauffman, Kolbelsch & Castellanus, 2000; Moon, 2002). At the same time, they act like their peers with advances in their ability and high levels of performance, especially when their interest is high, and their assignments are challenging. Nikola Tesla ([watch film](#)), a prominent inventor who invented alternating current motors in 1887, was an example of a person with ADHD who is still known today as having ADHD.

Gifted Students with Learning Disabilities: The largest subgroup of twice-exceptional students includes those who are gifted and have specific learning disabilities. For this group of students, giftedness does not make them immune to disabilities that affect learning (such as dyslexia, hearing impairment and language expression disorder). Many students with such characteristics not recognized because areas of strength and weakness lead them to average performance and it seems that they need neither special education services nor services related to gifted children. An

example of a gifted person with learning disability was Albert Einstein ([watch film](#)) who introduced the theory of relativity to the world even though he was struggling with how to read ([National Education Association, 2006](#)).

Children with disabilities are those who need special education and related services for different reasons, including mental retardation, hearing impairment (such as deafness), speech or language impairment, visual impairment (such as blindness), serious affective disorders, bone and joint abnormalities, autism, brain injury and other health disorders, specific learning disabilities, blindness-deafness or multiple disabilities ([Trail, 2010](#)). In order to understand the concept of twice-exceptionality, we should inevitably understand the concept of disability as discussed below.

Psychology of Twice Exceptional Students

Stress

Although most gifted are well adjusted, some are vulnerable to emotional distress because of the very characteristics that are the hallmark of twice exceptionally. These characteristics can potentiate their vulnerability. For example, asynchronous development can generate feelings of being out of sync with others of the same age. Some gifted feel uncomfortably different from their peers and become distressed that they are unable to find a friend. Others express the wish that they were like everyone else and view their gift as a burden. Difficulty with affect regulation related to over excitability and negative perfectionism can increase their vulnerability to emotional distress ([Nicpon & Assouline, 2015](#)).

Anxiety

In counselling parents of Twice exceptional children, I have found that giftedness in itself can be another source of anxiety. The social-emotional characteristics often contributing to anxiety in Twice exceptional individuals include:

- Heightened sensitivity, which indicates a greater awareness of the physical, social, and intrapersonal environments. Heightened sensitivity enables children to vicariously experience the emotions and moods of others, including parents, teachers, mentors, and other adults. Through this characteristic, children are keenly aware of when parents are happy, anxious, or stressed out, so much so, at times, they can feel what their parents are feeling. They are also keenly aware of disapproval or lack of approval and may feel responsible for when parents are unhappy. Essentially, twice exceptional children feel what all children feel, but some have more intense feelings because they can see and sense more the nuances of their parents' communication and demeanour ([Wells, 2018, Bailly, 2019](#)).
- Analytical attitude is a Twice exceptional individual's propensity to question, evaluate, and judge everything and everyone they encounter. However, Twice exceptional children may face disapproval and criticism when they question or challenge people in authority, such as parents and teachers. For example, when a Twice exceptional child corrects a teacher's error, the initial reaction may not be gratitude, but rather defensiveness and disapproval. Society and its agents (parents and educators) generally expect conformity and compliance. Questioning may be perceived as resistance and defiance. The analytic attitude predisposes Twice exceptional children to conflict with society, creating an external source of conflict ([Pfeiffer, 2015, Hill, 2020](#)).
- Self-criticism may also be a source of anxiety. Whereas the analytic attitude scrutinizes the external environment, self-criticism evaluates the intrapersonal environment. When Twice exceptional individuals turn their intelligence onto themselves, the tendency is to focus on deficits rather than accomplishments. Viewing oneself through a critical lens can result in disapproval of self and cause internal conflict and anxiety ([Nicpon & Assouline, 2019, Candler, 2017](#)).

Depression

Some in the gifted field argue that being gifted places one at heightened or increased risk for developing psychological problems and even psychiatric disorders, such as low self-concept, depression, and anxiety ([Baum & Owen, 1988; 2004; Baum, Owen, & Dixon, 1991](#)). [Webb et al. \(2005\)](#) suggest when discussing why gifted children are more likely to experience "existential depression" because of their ability to contemplate issues about existence and realize that they are essentially alone in the world. One could just as easily argue, however, that the gifted are at lowered risk for suicidal behaviors because their advanced cognitive abilities represent advanced problem-solving, coping and mastery skills. The educational life of a twice-exceptional student is often littered with negative experiences which can cause students to feel like a failure and to have low self-efficacy, increased internalised and externalised anger, and anxiety and depression ([Barber & Mueller, 2011](#)). Twice-exceptional learners have very diverse needs that must be considered when developing an instructional and intervention plan. Focusing only on deficit areas with the intent of fixing students often results in less positive outcomes of depression, lack of motivation, and loss of self-esteem.

Suicide

Suicide is, of course, not a disability. A discussion on suicide is included for two reasons. First, suicide is a very serious and real global mental health risk for adolescents, including gifted adolescents. Suicide is the third leading cause of death among adolescents in the USA; about 10 in 100,000 15- to 24-year-olds successfully complete suicide annually in the USA (American Association of Suicidology, 2004; National Center for Health Statistics, 2006). There is no research on the prevalence of attempted and completed suicide among gifted adolescents (Cross, 2008). However, the few studies that do exist suggest that the incidence of depression and suicide ideation is similar for gifted and non-gifted adolescents (Baker, 1995). There is no evidence to suggest that the prevalence of suicide would be greater or for that matter, lesser for gifted youth. Suicide and depression are often associated in the public mind with gifted individuals, particularly gifted artists.

Cross (2008) points out that suicidal behavior represents at least four categories of behaviors: suicidal ideation, suicidal gestures, suicidal attempts, and suicide completions. It is generally believed that suicidal ideation exists to some degree before a gesture, attempt, or successful completion takes place. Suicide ideation is a high frequency behavior among adolescents, particularly among youngsters with low self-esteem, feelings of depression and alienation, and academic, work-related, peer group and/or family difficulties. Suicide ideation does not necessarily lead to suicidal gestures or attempts, but nonetheless should always be taken seriously. Suicidal ideation is more prevalent among females than males, and this appears equally true for gifted females, as well (Cross, Cassidy, & Miller, 2006). There is no research evidence, however, indicating that gifted youth are at greater risk for suicidal ideation, gestures, attempts, or completions (Cross, in press). The caveat to this statement is that there is very little available research evidence to conclude that the gifted are at no more risk than their non-gifted peers for suicidal behaviors. One could easily argue that the gifted are at heightened risk for suicidal behaviors, as Webb et al. (2005) suggest when discussing why gifted children are more likely to experience "existential depression" because of their ability to contemplate issues about existence and realize that they are essentially alone in the world. One could just as easily argue, however, that the gifted are at lowered risk for suicidal behaviors because their advanced cognitive abilities represent advanced problem-solving, coping and mastery skills.

It is reasonable to assume that the prevalence rates for suicidal ideation, gestures, attempts, and successful completions are not markedly different for gifted children and adolescents from what is reported for the general population. Gifted children and adolescents do engage in suicidal behaviors, just like their non-gifted peers. Risk factors associated with suicide among adolescents includes drug and alcohol abuse, family history for suicide, physical or sexual abuse, prior suicidal attempts, impulsiveness, psychiatric disorders such as bipolar disorder, depression, or bereavement due to loss of a close friend or family member. Easy access to lethal methods is the number one risk factor (Pfeiffer, 2015).

Self-concept

Research has recurrently shown that twice-exceptional learners characteristically have a lower self-concept than their gifted peers and averagely-performing peers. Self-concept refers to the way individuals perceive their self-worth and encompasses the two broad domains of social self-concept and academic self-concept. Social self-concept relates to perceptions of personal qualities, interpersonal relationships, and appearance. Conversely, academic self-concept is a student's perception of their academic performance, level of competence, and their expectations of academic success/failure, and is thought to be critical for academic success (Townend & Brown, 2016).

Twice-exceptional learners commonly present with low self-concepts. In the last decade, mixed-methods studies by Townend (2015), Foley-Nicpon et al. (2012), and Barber & Mueller (2011) all found that the twice-exceptional children and adolescents they investigated exhibited low self-concept. The twice-exceptional boys in Townend's (2015) study all reported feeling atypical and disassociated from their peers, while two of the three participants also presented as having low academic self-confidence (Townend & Pendergast, 2015). Barber and Mueller's (2011) study of the social and self-perceptions of 90 twice-exceptional adolescents indicated lower self-concepts and more problematic social functioning than the adolescents in the gifted and non-identified (average) comparison groups. Similarly, the intellectually-gifted learners with ADHD in Foley-Nicpon et al.'s (2015) study self-reported having lower self-esteem, self-concepts, overall happiness, and more negative perceptions of their own behaviour than the gifted students without ADHD.

Nevertheless, low self-perception is not experienced by all twice-exceptional learners. On the contrary, research has shown some twice-exceptional learners to have a positive self-concept and high confidence levels. When the environment of the child is safe, supportive, encouraging, promotes high expectations, and meets their social-

emotional needs, twice-exceptional children can attain academic and social confidence, and positive overall self-concept.

A learning environment that nurtures the specific academic and social-emotional needs of twice-exceptional learners can affect positive change in these students (Baum et al. 2014). A case study by Baum et al. (2014) observed notable increases in the self-concept of ten students (11-13 years) who entered a strengths-based private middle school, tailored for twice-exceptional learners. The participants all reported previous negative school experiences and exhibited a range of social-emotional problems, poor self-concept, anxiety, depression, inhibition, and feelings of hopelessness. However, at graduation (2 years later), the students were significantly more able to overcome social, emotional and cognitive challenges, their social skills were improved, and their overall self-concept had increased considerably. Baum et al. credit this positive change to providing a psychologically safe environment; allowing students time to work at their own pace; understanding asynchronous behaviours; fostering positive relationships between the students and their teachers, peers, and family; and providing a strengths based, talent-focused learning space.

Conclusion

This article could easily have been expanded to include a discussion on the twice exceptional gifted/student with Autism Spectrum Disorder, physical disabilities, sensory disabilities, and a wide number of psychiatric disorders. These different types of twice exceptional student exist and each present with a unique constellation of characteristics and needs. And as already mentioned, there are probably a significant number of high ability students with an admixture of two or more co-existing disorders along with their gifts. Identification of the twice exceptional student is often a complex and challenging undertaking. Gifted assessment must always consider *both* the type and level of giftedness and the type of disability and degree of impairment. Psycho-educational interventions for the twice exceptional student should take into account the social/ interpersonal and emotional issues, student's background, culture, and family, and how to accommodate the student's academic strengths and interests as well as plan to address their weaknesses and disability (NEA, 2006; Pfeiffer, 2013).

Gifted students can have problems, just like any other youngsters. The gifted are not immune to mental health and medical problems that can befall any student. It is important to remember that sometimes being intellectually or academically precocious can mask underlying psychological problems. And that psychological problems such as ADHD and SLD can sometimes mask being gifted (Pfeiffer, 2013).

Twice-exceptionality is an under-researched yet extremely interesting topic. To foster students with twice-exceptionality, teachers need a comprehensive understanding of the condition, equipped with a positive attitude and ample curriculum differentiation options tailored to individual strengths and weaknesses. High-quality support for students in primary school may result in furthering the individual to succeed to the best of his or her ability in future schooling and work life. With enough attention, adequate support and an education tailored to their needs, they can not only succeed, but excel in life (Leggett, Shea & Wilson, 2010).

Regarding social-emotional needs, many twice-exceptional students feel Stress, anxiety, depression, isolated and frustrated rather than other child (Bees, 2009; Yssel et al. 2010). This Students need to feel a sense of acceptance and belonging to build self-esteem, confidence, achievement, and respect for others and self (Baum, 1994). Twice-exceptional students often do not feel a sense of belonging because they are aware of being different (Bees, 2009). In their research on social exclusion in schools, Nowicki, Brown & Stepien (2014) found that differentness is a key element in "driving the act of socially excluding children" (p.9). Twice exceptional students may feel such differentness twice-over; they do not necessarily fit into either the gifted population or among students who have single-exceptionality learning difficulties. Difficulty establishing connections can add to twice-exceptional students' feelings of loneliness and isolation (Yssel et al. 2010). Therefore, parents, counsellors, school psychologist and educators must be aware of these social and emotional challenges and work to foster a sense of belonging to lessen the potential for negative social and emotional outcomes among twice-exceptional students (Baum, 1994; Bees, 2009).

Our study showed remarkable emotional disturbance of twice-exceptional children. However, our study was small, and limited to a review study. Future research could examine the experiences of other emotional problem in different situation. As we found that stress, anxiety, depression suicidal think is some psychological problem in twice exceptional children, future studies could study other psychological problem in this group.

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Retracted