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Research Article

Using the ElemenOE with parents to identify Dąbrowskian overexcitabilities among precocious children[1]

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Abstract

This exploratory study examined parents' observations of the prevalence of five forms of overexcitability in children between the ages of four and eight who were identified as gifted by a standardized intelligence test score of 130 or greater. The study included 132 parents of gifted children in the United States who completed an online version of the ElemenOE questionnaire, an instrument with 30 items measuring overexcitabilities on a 5-point Likert scale. Results revealed intellectual overexcitability as most prevalent (M = 4.39), with three forms (intellectual, psychomotor, and emotional) exceeding the threshold for classification as "high" overexcitability. Males scored higher in psychomotor overexcitability, and while females scored higher in the remaining four OEs, only the differences in intellectual and imaginational overexcitabilities were statistically significant. Chi-squared analyses revealed significant associations between gender and both imaginational and psychomotor high scores (>3.5). While children with disabilities (15.5% of the sample) showed higher mean values across all overexcitabilities, particularly in sensual (3.75 vs. 3.34) and emotional domains (4.27 vs. 3.98), these differences were not statistically significant. Neither age nor level of giftedness showed significant correlations with overexcitability scores, though profoundly gifted children demonstrated notably less variability in scores across all domains. Strong positive correlations emerged between certain overexcitability pairs, particularly emotional-sensual and emotional-psychomotor. These findings contribute to the literature on overexcitabilities among younger gifted children and provide insight that may be used to guide education, school counseling, and parenting practices to support the development of gifted youth. Results demonstrate that the ElemenOE is an effective tool for parents and caregivers to identify students' overexcitability profiles.

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Introduction

The field of advanced academics is beset by questions as to how advanced intellectual potential should be defined, how gifted students may be identified, how they may develop socially and emotionally, and what steps should be taken to meet the cognitive and affective needs of these individuals. A central question is whether giftedness should be viewed solely through the lens of potential or ability, as measured by standardized intelligence (IQ) tests, or whether other attributes commonly found among gifted people, such as Dąbrowskian overexcitabilities, should be considered salient indicators of giftedness (Mendaglio, 2022). Kazimierz Dąbrowski's (1964) Theory of Positive Disintegration includes the concept of overexcitabilities (OEs)—heightened responses to stimuli in five forms (intellectual, imaginational, emotional, sensual, and psychomotor)—which have been found at higher levels in gifted individuals compared to non-

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gifted individuals (Ackerman, 1997; Adi & A'ron, 2023; Bouchet & Falk, 2001; Harrison & Van Haneghan, 2011; Winkler & Voigt, 2016). Furthermore, valid and reliable instruments exist for measuring Dąbrowskian OEs in students and adults, such as the Overexcitabilities Questionnaire-II and its children's version (Falk et al., 1999). Bouchard (2004) similarly developed the ElemenOE overexcitability instrument as an alternative assessment to be included in a multiple-measures gifted identification process with students between the ages of four and 12. This instrument acknowledges giftedness as a construct that extends beyond mere academic aptitude and may be used to identify students otherwise missed by more traditional measures of intelligence used in schools.[5] However, research using this instrument is limited to a handful of studies. This study addresses the critical need for expanded research on the ElemenOE instrument and its use by parents of gifted children.

The connection between giftedness and overexcitability has generated academic debate. The scholarly community in gifted education tends to divide into two camps: those who support the OE framework and maintain that gifted individuals demonstrate higher levels of overexcitability than the general population (see Gallagher, 2022; Mendaglio, 2022; Piechowski et al., 1985; Silverman, 2000) and those who challenge the assumption that overexcitability is inherently linked to giftedness or serves as a distinguishing characteristic of gifted individuals (see Lavrijsen & Verschueren, 2023; Wiley, 2019; Zeidner & Shani-Zinovich, 2011). Some critics prefer the use of other models of personality development and emphasize that overexcitabilities should be replaced with one of the facets of the Big Five model, openness to experience (see Vuyk et al., 2016). However, the abundance of evidence suggesting a relationship between OEs and high intellectual ability justifies a continued, rigorous, and multifaceted examination of this relationship, especially as it may apply to different populations (e.g., children of varying age groups and levels of giftedness).

Gifted children often display asynchronous development in which their intellectual, physical, social, or emotional development occurs at different or uneven rates (Guilbault & Kane, 2016). For example, they may show advanced cognitive ability beyond their chronological age, while at the same time, their social and emotional development may be lagging. Furthermore, the expectations and structures of typical classrooms often do not meet their complex educational and psychosocial needs (see Besnoy et al., 2015; Daniels & Piechowski, 2009; Sharma et al., 2024). Identifying OE profiles in young gifted children has practical implications for educational settings and home environments. For educators, understanding these profiles can inform differentiated instructional approaches, school counseling, and classroom management strategies that accommodate heightened sensitivities rather than penalizing them. For parents, this knowledge can guide more effective parenting strategies that support these innate intensities. Ultimately, proper identification of OEs may prevent misdiagnoses of behavioral or emotional disorders and reduce the psychological distress often experienced by gifted children whose needs are misunderstood. However, identifying OEs in gifted young children poses a challenge, as they may not yet possess the reading ability to complete surveys; thus, the perspectives of those closest to a child (such as parents and teachers) provide crucial secondary data. Previous studies examining OEs in gifted children have often relied on self-report scales (e.g., OEQ-II) or teacher observations, and few have included parents or children younger than age nine. Most other instruments designed to measure OEs in older students or adults are self-report surveys that require advanced reading ability; in contrast, the ElemenOE is to be completed by an adult who knows the child well, such as a classroom teacher or a parent.

Although the central purpose of the ElemenOE was to identify students for gifted education services, the instrument offers another, even more compelling benefit: detecting overexcitabilities among young, gifted children. In the early elementary school grades (from Pre-K to grade 2 in the U.S.), overexcitabilities may manifest through elaborate play (Fung & Chung, 2021; Tucker & Lu Haferistein, 1997), expressions of strong emotion (Wood et al., 2024), or intense reactions to stimuli (Piechowski & Wells, 2021). Teachers may misconstrue these behaviors as academic and/or

[5] The term "overexcitabilities" might appear to be pejorative, as it could suggest an "excessive" degree of sensitivity. However, this term is the commonly held English translation for the Polish *nadpobudliwósc*, or "superstimulability," as conceptualized by Dąbrowski. As Piechowski et al. (1985) explain, "the intended sense [of the word] is of robust surplus and intensity" (p. 540).

behavioral deficits (Tucker & Lu Haferistein, 1997). Thus, understanding individual student OE profiles may be crucial in designing social and emotional support for educating and parenting advanced learners. Additional empirical research is needed to justify using the ElemenOE with early elementary school gifted students. This study fills a gap in the literature by examining overexcitabilities among very young, gifted children and the efficacy of the ElemenOE administered to parents and caregivers of gifted children between the ages of four and eight.

Theoretical Framework

This paper derives primarily from Dąbrowski's (1964) Theory of Positive Disintegration, which is centered on the idea that human beings progress, often in an iterative or nonlinear way, from primitive integration, or "a compact and automatic structure of impulses" (p. 3), through a process of disintegration that may lead to
secondary integration or mature self-actualization. However, this process of positive disintegration is rife with conflict and uncertainty as the individual grapples with different external influences and expectations, as well as personal instincts and desires. As mentioned previously, this process is often iterative, as an individual may re-experience tension and disintegration during multiple phases of life. Furthermore, some individuals experience disintegration in a highly sensitized way, exhibiting overexcitabilities across any or all of the five dimensions: intellectual, emotional, imaginational, sensual, and psychomotor. These OEs often coincide (though not necessarily) with giftedness, and thus, the accurate measurement of OEs may be instrumental in helping to identify children with unusually high abilities.

This conception of OEs vis-à-vis giftedness also aligns with Roeper's (1996) description of the "gifted personality structure"; as she explains, "the more highly gifted a child is... the more often the Self comes into conflict with the expectations of the surroundings" (p. 18). The presence of OEs within a child may be evidence of this conflict, as the child's curiosity and hyper-stimulability contend with the (sometimes arbitrary and stifling) behavioral expectations of home, school, and the broader world.

Literature Review

Kazimierz Dąbrowski's (1964) Theory of Positive Disintegration (TPD), and particularly his concept of overexcitabilities (OEs), has significantly influenced our understanding of gifted children's developmental characteristics and experiences. This review synthesizes key findings from research examining the relationship between OEs and giftedness.

Overexcitabilities

TPD offers a distinctive view of human psychological development and human growth. Unlike the linear developmental theories of his contemporaries, Dąbrowski's theory proposes that psychological tension and anxiety could be catalysts for advanced personal growth, occurring across five non-sequential levels that not everyone necessarily achieves. A key concept in TPD is "overexcitabilities," or heightened responses to stimuli in five domains: intellectual, imaginational, psychomotor, sensual, and emotional. (See Table 1 for examples and definitions of each OE.) These OEs, combined with special talents and an internal drive toward growth, constitute an individual's *developmental potential*, which Dąbrowski (1972) defined as a person's innate capacity for development.

While neither TPD nor OEs are exclusive to gifted individuals, the theory particularly resonates with those who are focused on the psychology of giftedness and who view giftedness through the lens of asynchronous or uneven development (Guilbault & Kane, 2016; Lind, 2000; Mendaglio, 2022).

Dąbrowski's framework considers both genetic predispositions and environmental influences in development, emphasizing the crucial role of emotions. The theory suggests that psychological disintegration, rather than being purely negative, can lead to positive transformation and higher levels of personal development. Understanding OEs as part of TPD provides valuable insight into individual growth patterns, particularly when OEs are considered alongside talents and developmental potential. Research suggests that the quantity and intensity of overexcitabilities influence how deeply individuals experience emotions (Mendaglio, 2012; Wood et al., 2024). In Mendaglio's (2012) study, he emphasized that development through TPD requires all five types of overexcitabilities working together. This combination creates essential internal conflicts and external conflicts (with others). Personal growth occurs when individuals move beyond their basic biological drives and social conditioning by experiencing and resolving these conflicts.

Table 1. Definitions and Examples of Overexcitabilities

Overexcitability	Definition	Examples
Intellectual	Strong intellectual curiosity.	Asks probing questions; prefers logical reasoning; interested in theories; seeks knowledge and truth; needs continuous and intense intellectual stimulation.
Imaginational	Rich association of images, inventiveness, and use of metaphors. The capacity to visualize exceptionally well.	Recounts vivid or elaborate dreams or nightmares; daydreams; has imaginary friends and/or fantasies; has low tolerance for boredom.
Sensual	Heightened experience of sensory and aesthetic pleasure.	Moved by art or music; seeks sensory stimulation. Enhanced sensitivity can result in pleasure *or* displeasure with sensory input (e.g., food textures, smells).
Psychomotor	An excess of energy or an excessive excitability of the neuromuscular system.	Rapid speech; restlessness; surplus of energy; impulsive actions; acting out.
Emotional	Strong attachments to people, places, or things.	Concerns about death, strong affective memory, great capacity for empathy, and forming deep attachments.

According to Tieso (2007b), "Only when the expressions of excitability are beyond and above what can be considered common or average do they make a significant contribution to developing one's potential and subsequently to the development and nurturance of giftedness or creativity" (p.12).

Giftedness and Overexcitabilities

Multiple studies using the OEQ-II have demonstrated that gifted students and adults typically exhibit higher levels of OEs compared to their non-gifted peers (Ackerman, 1997; Limont et al., 2014; Piechowski & Colangelo, 1984; Wirthwein & Rost, 2011). Several researchers have found two or three specific OEs in combination to be strong discriminators between gifted and non-gifted groups. Still, these OEs vary from study to study, with the exception of intellectual OE. Ackerman's (1997) study found significantly higher scores across all five OEs in the gifted population, with intellectual, emotional, and especially psychomotor overexcitabilities showing the strongest correlations with giftedness in adolescents. Tieso (2007a) reported that gifted students displayed exceptionally high levels of intellectual and imaginational OEs. Several studies revealed higher scores on the combination of intellectual, imaginational, and emotional OE, referred to as the Big Three (Falk & Miller, 2009; Siu, 2010; Winkler & Voight, 2016), and Limont et al. (2014) found that gifted students displayed significantly higher imaginational, intellectual, and sensual OEs as compared to a non-gifted sample. Although differences have been found between gifted and non-gifted samples in prior studies, there have been some limitations either in sample size or in their definitions of giftedness, and some studies revealed small effect sizes.

Gender and age differences have also been studied. Miller et al. (1994) found higher emotional OE means for females and higher mean scores for intellectual OE among males. Tieso (2007b) examined individual and family-level factors influencing patterns of OEs in children and adults using the OEQ-II. In her study, females scored higher on both sensual and emotional OE subscales, with the mean emotional OE score increasing for adult females, while males scored higher on intellectual OE. Adults scored significantly lower than children on imaginational and psychomotor OEs. In addition, Tieso (2007b) reported that gifted students had the highest mean for psychomotor OE, consistent with Ackerman's (1997) findings. Differences have been reported on the OEQ-II between Korean and U.S. gifted adolescents, with Korean males and females scoring higher in psychomotor OE and U.S. males and females scoring higher in imaginational OE (Piirto et al., 2008).

A few recent studies have examined overexcitability profiles within the highly or profoundly gifted population (see Guilbault et al., 2024; Gallagher, 2022; Wood et al., 2024). These include an exploratory study with a small sample of

families with gifted children aged five to nine (Guilbault et al., 2024), a survey of identified highly gifted U.S. middle school students (n = 108; Gallagher, 2022), and a mixed methods study of highly to profoundly gifted students between the ages of four and 13 in the U.S. and Belgium (Wood et al., 2024). Gallagher (2022) found that 40% of the students scored high on three or more OEs on the OEQ-II; however, student participants admitted to a charter school for the highly gifted also included some students who had previously been identified with scores between two and three standard deviations above the norm, and therefore not all meet our definition of "highly gifted." Wood et al.'s (2024) mixed methods study of 88 parents of HG/PG students used strict criteria for participation, requiring participants to "have a child who has been identified as highly or profoundly gifted via the Wechsler Intelligence Scale for Children, Fifth Edition (WISC-V) or other similar qualifying report" (p. 3), and they verified the test results. Results for both Guilbault et al.'s (2024) and Wood et al.'s (2024) studies showed the highly and profoundly gifted groups displaying high mean OE scores in all five OEs on either the OEQ-II or the ElemenOE.

Research examining OEs among artistically talented, creative, and musically talented adults also revealed significantly higher scores for gifted samples. For example, Martowska et al.'s (2020) study of professional actors revealed higher scores in imaginational, emotional, sensual, and psychomotor factors in the artistically talented group. Similarly, Martowska & Romanowicz (2020) explored OE profiles of musically talented adults in Poland. When the musically talented group of university students was compared with a control group, female musicians showed higher levels of sensual, imaginational, and intellectual overexcitabilities than non-musician females. Male musicians displayed higher sensual and emotional overexcitabilities but lower psychomotor overexcitability as compared to non-musician males. Overall, musicians were twice as likely to have high emotional and sensual scores as non-musicians.

Harrison and Van Haneghan (2011) investigated the prevalence of fear of the unknown, death anxiety, and insomnia among gifted middle and high school students. As in previous studies (e.g., Bouchet & Falk, 2001; Falk & Miller, 2009; Piechowski & Colangelo, 1984), gifted students had significantly higher levels of intellectual and imaginational OEs than non-gifted students. The authors found that gifted students with high emotional and intellectual OEs showed an increased likelihood of insomnia. The combination of emotional and intellectual OEs seemed to create a particular sensitivity to existential questions, as students had both the emotional intensity to feel deeply about these issues and the intellectual capacity to grapple with complex philosophical concepts. Piechowski (1997) purported that this combination of OEs may lead to existential depression. In addition, higher levels of imaginational OE among the gifted sample correlated with increased fear of the unknown, possibly because these students could envision more potential scenarios and outcomes yet lacked the life experience or emotional resources to process these feelings.

Behavioral manifestations of OEs in gifted children include intense curiosity, rapid speech, vivid imagination, heightened emotional reactions, and sophisticated moral concerns (Tucker & Lu Haferistein, 1997). Tucker and Lu Haferistein (1997) stated that these characteristics often appear early in a child's development and remain relatively stable throughout childhood. These behaviors may be misdiagnosed as learning disabilities or otherwise misunderstood. The presence of OEs in gifted children, therefore, has important implications for educational practice. Daniels and Piechowski (2009) suggest that traditional classroom environments may not adequately accommodate these intensities, potentially leading to underachievement or behavioral issues.

OE and Twice-Exceptional Learners

Twice-exceptional learners are defined as students with gifts or talents and a disability (Guilbault & McCormick, 2023). Unsurprisingly, OEs in gifted individuals may also coincide with, or in some cases be mistaken for, disorders such as attention deficit-hyperactivity disorder (ADHD) (Ackerman, 2009; Al-Hroub & Krayem, 2018; Rinn & Reynolds, 2012; Webb et al., 2016), autism (Karpinski et al., 2018), and obsessive-compulsive disorder (Webb et al., 2016). When explaining Dąbrowski's early work, Piechowski and Wells (2021) noted that it "described conditions that were not named until after his death in 1980. Two examples include Attention Deficit/Hyperactivity Disorder (ADHD) and autism spectrum disorder (ASD), which both include symptoms that overlap with certain types of overexcitabilities" (p. 72). Moreover, OEs may overlap with elements of bipolar disorder, which also bears similarities to ADHD. Tieso (2007b)

noted the possibility of misdiagnoses when both psychomotor and emotional OE are in a gifted learner's profile, stating, "Finally, the presence of high Psychomotor and Emotional OEs in gifted students may also be problematic, as it may lead to diagnoses of ADHD and other behavior disorders" (p. 20). Bertschy et al.'s (2023) findings on "thought overexcitability," as one component of a highly active mind, as measured by the authors' Racing and Crowded Thoughts Questionnaire (RCTQ), indicate a strong relationship between thought overexcitability and both ADHD and bipolar disorder. Thought overexcitability and "thought overactivation" (Bertschy et al., 2023), frequently found in individuals with ADHD and/or bipolar disorder, may be viewed as analogous to Dąbrowskian intellectual OE. In addition, bipolar disorder has also been found to be common among highly creative individuals (Feist et al., 2024), who may also be described as showing high Dąbrowskian imaginational, intellectual, and emotional OEs (He et al., 2017).

As for the frequency of mental health diagnoses, it has been estimated that 11.4% of U.S. children between the ages of three and 17 have an ADHD diagnosis (Danielson et al., 2024), 2.8% of children at age eight are identified as autistic (Maenner et al., 2023), and roughly 2% of children/adolescents are diagnosed with OCD (Walitza et al., 2011). All three of these conditions, as well as bipolar disorder, appear to be especially common among high-IQ individuals (see Karpinski et al., 2018), though, on the flip side, autism also frequently co-occurs with intellectual disabilities (Vaz et al., 2021). Meanwhile, bipolar disorder, which is usually identified in late adolescence or adulthood and appears in 4.4% of U.S. adults (Harvard Medical School, 2017), is also sometimes diagnosed in children, although the legitimacy of "pediatric bipolar disorder" is itself a topic of major controversy (see Duffy et al., 2020; Malhi et al., 2023; Parry et al., 2018).

Given the intricate web of overlapping behavioral and psychological characteristics among gifted individuals and individuals with a variety of diagnoses (including some contested diagnoses), it should be considered that some students with identified mental health conditions may, in fact, be manifesting Dąbrowskian OEs, in addition to (or instead of) these conditions. Early documentation of OEs may be helpful to avoid medical misdiagnosis later. Thus, the targeted measurement of OEs among young, gifted children may enable a more precise picture to emerge as to how these children (with or without mental health diagnoses) experience and express themselves as highly alert and sensitive beings.

Instruments Used to Measure OEs in Children

The measurement of Dąbrowskian overexcitabilities has evolved significantly since their initial conceptualization. Early assessment relied primarily on qualitative interviews and observational methods, but researchers recognized the need for more standardized quantitative measures to facilitate empirical research. Falk et al. (1999) developed the Overexcitabilities Questionnaire-Two (OEQ-II), a 50-item self-report questionnaire using a 5-point Likert scale to measure all five OEs. The OEQ-II is the most widely used and validated instrument for adolescents and adults. Internal consistency reliability coefficients range from .85 to .89, and test-retest reliability on the scale ranges from .77 to .82. One limitation of this instrument is that it is unsuitable for use with younger gifted children.

The ElemenOE, on the other hand, was designed specifically for children under age 13. It is a valid and reliable instrument developed by Bouchard (2004), with statements encompassing each of the five Dąbrowskian overexcitabilities. The 30 items on the ElemenOE are answered on a 5-point Likert scale, with responses ranging from "not observed"(1) to "much more than other children"(5). Examples of statements on the instrument include: "Shows strong curiosity, asks many questions or a few questions with depth," and "Is judgmental about right and wrong, fair and unfair." The instrument was developed through a rigorous process, wherein Bouchard constructed an initial set of 100 items based on a thorough review of the literature on OEs and existing OE questionnaires and checklists (Bouchard, 2000). Items were carefully tailored to describe observable behavior found in children under age 13 and to be easily interpreted by educators without knowledge of Dąbrowski's theory (Bouchard, 2000). Further, construct and content validity were assessed using a content jury of "five scholars with expertise in Dąbrowski's work" (Bouchard, 2000, p. 40). After some items were eliminated, an instrument with 61 items was pilot-tested by over 300 classroom teachers who taught students of varying abilities. The overall scale demonstrated good reliability with a Cronbach's alpha of .883. The reliability of individual subscales varied considerably, with the intellectual overexcitability subscale showing the strongest internal consistency (α = .904), and the sensual overexcitability subscale showing the weakest (α = .551). The author

suggested that the weaker reliability for emotional, sensual, and imaginational OE might be addressed to obtain more reliable results by inviting parents to complete the questionnaire as well as teachers, since several of these items refer to behaviors that may be better observed at home than in school (Bouchard, 2004). Factor analysis of the results and feedback from the content jury were used to reduce the number of items, resulting in the final ElemenOE instrument with 30 items. This revised instrument was then administered to two groups of students: one group of 96 who had been identified as gifted and another group of 75 who had not been identified as such. During this stage, interrater reliability and content validity were established (Bouchard, 2000).

A literature review yielded two studies using the ElemenOE aside from Bouchard's original 2004 study. Adi and A'ron (2023) administered a revised, 38-item version of the ElemenOE to a sample of 107 parents of children between the ages of eight and 14, examining these parents' perceptions of their children's overexcitabilities, coping strategies, self-esteem, hope, and well-being. The authors found emotional and sensual OEs to be strongly related to coping strategies, and based on these results, they proposed an intervention program (Adi & A'ron, 2023). Their sample, like Bouchard's sample, included groups of students who had been identified as gifted and those who had not been identified as gifted. Results indicated that gifted learners had higher levels of all five OEs compared to non-identified students, but no significant differences emerged between the two groups of students in their levels of self-esteem, hope, or well-being (Adi & A'ron, 2023).

Guilbault et al. (2024) used the ElemenOE to explore OE prevalence and profiles among young, moderately to profoundly gifted children. Twelve families of gifted children between the ages of five and nine completed the Big Five Questionnaire for Children-II (BFQ-II-C; Barbaranelli et al., 2003) personality inventory and the ElemenOE, and participated in semi-structured interviews that investigated parent perceptions of their child's personality and social-emotional development. Findings from their study showed that highly and profoundly gifted students (i.e., those with IQ test results three or more standard deviations above the norm) scored higher in both openness to experience and all five overexcitabilities as compared to students identified as moderately gifted (i.e., students with IQ test results two standard deviations above the norm). Although the sample size in this exploratory study was small, the findings align with the findings of other studies that examined OEs among highly and profoundly gifted students using other instruments (e.g., OEQ-II; Gallagher, 2022; Wood et al., 2024) and provide preliminary evidence that should be further investigated with a larger sample. Both studies provide evidence of the ElemenOE as a useful tool to measure OEs in children and young adolescents with parents and caregivers. Research has shown that parents can accurately judge their preschool (and older) child's giftedness (Guilbault, 2012; Guilbault et al., 2024; Oğurlu & Çetinkaya, 2012; Papadopoulos, 2021); therefore, they may also be able to evaluate their child's overexcitable behaviors. While the ElemenOE provides the benefit of a short administration time, one limitation is the few available validation studies for this instrument.

Some scholars have raised methodological concerns about OE research, particularly regarding the structural validity and reliability of commonly used scales (see De Bondt & Van Petegem, 2015) and assumptions about the OEs as continuous versus categorical variables (e.g., Mendaglio, 2012; Warne, 2011). Mendaglio and Tillier (2006) questioned whether current assessment tools adequately capture the construct of overexcitabilities. Other authors critique the reliance on findings from studies with small effect sizes to assert claims that the gifted are more excitable than non-gifted peers (Winkler & Voight, 2016). Another issue highlighted in the literature is the problem with separating OEs from the context of Dąbrowski's original theory. More recently, a growing body of literature investigating personality differences suggests that these traits align closely with the personality trait of openness to experience (OtE), which authors argue should be used in place of OEs due to the strong empirical support of the Five-Factor Model of personality development and OtE (Limont et al., 2014; Vuyk et al., 2016).

Additionally, some researchers question the premise of studies that propose a positive relationship between intellectual giftedness and OEs (Mendaglio, 2012), and others argue that the construct of intellectual OE is not distinct enough from the construct of intellectual giftedness, as both intellectual OE and giftedness are linked to "cognitive activity" (Tourreix et al., 2023, p. 26). Essential areas for future study include investigating cultural variations in OE

expressions, examining the developmental trajectory of OEs throughout the lifespan, and exploring the relationship between specific types of giftedness and OE patterns. Longitudinal studies are particularly needed to better understand how OEs influence talent development and psychological well-being over time. Extant research on OEs in the U.S. lacks sufficient samples of twice-exceptional students and gifted children from varied cultural or linguistic backgrounds (e.g., bilingual students, English emergent students) and a focus on OEs during early childhood. In addition, methodological issues that should be further addressed include small sample sizes and the over-reliance on self-report measures. While the relationship between OEs and giftedness remains an area of active investigation, the literature generally supports Dąbrowski's original observations. Understanding OEs provides valuable insights for identifying and supporting gifted children.

Problem of Study

Bouchard (2004) recommended further research using the ElemenOE with *parents* since some of the items on the questionnaire may be more observable at home. This exploratory study investigated overexcitability profiles among young, gifted children as reported by their parents. The research questions guiding this study relate to using the ElemenOE to identify OEs in elementary gifted learners to inform school counseling, teaching, and parenting practices. For this purpose, answers were sought for the following two overarching questions:

- Research Question 1: Which of the five Dąbrowskian overexcitabilities, as measured using the ElemenOE, do parents most frequently observe in their gifted children?
- Research Question 2: Are there differences in mean OE scores across different groups of children (e.g., gender, disability status, level of giftedness)?

Method

Research Model

The present study follows a quantitative survey research design (Creswell & Creswell, 2018) to investigate overexcitabilities in gifted children. A survey methodology was selected because it allows for the systematic collection of data from a large sample of participants (Babbie, 2020) and was particularly suited for this investigation.

Data Collection and Procedures

With university ethical review board approval, parents of gifted children were invited to participate in the study. Recruitment occurred through email invitations from two U.S. national organizations serving gifted individuals. The criteria for membership in one organization include a standardized intelligence score at least two standard deviations above the norm (e.g., 130 or greater on the Stanford-Binet-V). The eligibility criterion for the second organization is a standardized intelligence test score three or more standard deviations above the norm (e.g., 145 or greater on the Stanford-Binet-V). By using purposive sampling and recruiting families through these national organizations, we could be sure that the children met our criteria for the study, i.e., "any child between the ages of four and eight who has been formally identified as intellectually gifted with an IQ score two or more standard deviations above the norm." Participants completed the ElemenOE online using Qualtrics, a web-based software platform. Besides survey items, demographic data were also collected, including information about their child's age, race, ethnicity, disability status, level of giftedness, and gender.

Participants

This study investigated parents' observations of their child's OEs. To address a gap in the literature, we explored the utility of the ElemenOE with parents (instead of teachers), focusing on young children aged four to eight. Parents observe their young children from birth and may witness different aspects of their young child's personality at home compared to what may be observed at school. If the ElemenOE instrument is valid and reliable for use with parents as observers, it could potentially be used as an additional data collection tool in schools.

The study included parents of 132 identified gifted children between the ages of four and eight. The mean age of the children was 6.93 years. Among the participants who responded to the survey items about their child's gender, most of the children were male (72.9%). Most participants identified their child's ethnicity as not Hispanic or Latino (85%). Most of the children were White (51.3%), followed by Asian (28.2%) and African American or Black (12.8%), and 8.6% of parents selected multiple races from the categories provided on the survey. Three indicated that their child's race was American Indian or Alaska Native.

For the demographic item asking participants to report their child's IQ score and level of giftedness, 109 people responded. Most of the participants' children fell into the highly gifted range (IQ 145-159; 49.5%), followed by moderately gifted (130-144; 42.4%), and nine children (8.3%) were identified as profoundly gifted with an IQ score of 160 or greater. Participants were also asked if their children had been diagnosed with a learning difference or disability. Of those who responded to this item on the survey (n = 116), 15.5% indicated that their child was twice-exceptional, and 66.7% of these twice-exceptional students had a formal Individualized Education Plan (IEP) that outlined specialized education services to be provided to them. Table 2 describes the characteristics of the sample.

Table 2. Characteristics of participants' children

Variable	***n***	**% of respondents**	***M*(*SD*)**
Age	116		6.93(1.11)
4	3	2.3	
5	11	8.3	
6	24	18.2	
7	31	23.5	
8	47	35.6	
Gender	118		
Male	86	72.9	
Female	32	27.1	
Level of Giftedness	109		
Moderately	46	42.2	
Highly	54	49.5	
Profoundly	9	8.3	
Disability status	116		
No disability	98	84.5	
Disability	18	15.5	
Ethnicity	115		
Hispanic/Latino	12	10.4	
Not Hispanic/Latino	99	86.1	
Prefer not to say	5	4.3	

Note. Participants did not respond to all demographic items.

Instrument

An online version of the 30-item ElemenOE instrument was used in this study. The questionnaire was administered using Qualtrics. The ElemenOE was selected because it is one of the few valid instruments developed to measure OEs in gifted children as young as four. It can be quickly completed by parents or teachers who know the child well.

Cronbach's alpha was calculated for each subscale to assess the internal consistency and reliability of the items within each factor. The alpha coefficients for the subscales are as follows: intellectual OE (.766), imaginational OE (.738), sensual OE (.664), psychomotor OE (.765), and emotional OE (.751). These values exceed the recommended threshold of .70 for psychological scales, indicating acceptable internal consistency (Taber, 2018), except for sensual OE, which was slightly lower yet still acceptable and similar to Bouchard's (2000) finding in her pilot study. The overall scale reliability with a Cronbach's alpha of .856 further corroborates the internal consistency of the ElemenOE (see Table 3).

Table 3. Cronbach's Alpha coefficients for ElemenOE subscales

OE Subscale	Cronbach's Alpha	*N* of Items
Full Scale	.856	
Intellectual	.766	11
Imaginational	.738	3
Sensual	.664	4
Psychomotor	.765	6
Emotional	.751	6

Note. Alpha coefficients reflect the internal consistency of each subscale. The overall alpha coefficient indicates the reliability of the total scale.

Data Analysis

Qualtrics survey data were exported to SPSS version 29 for analysis. Descriptive statistics were calculated for each of the five subscales, including frequencies, means, and standard deviations. These calculations provided a comprehensive overview of the central tendencies and variability in the OE scores as reported by parents. The analyses aimed to address the two primary research questions guiding this study.

Further statistical tests explored group-level differences in OE scores. To investigate gender differences, independent *t*-tests compared mean OE scores between male and female participants, while chi-squared tests assessed associations between gender and the presence of high OE scores, defined as scores equal to or exceeding 3.5. This cut-off of 3.5 was selected to indicate the threshold of a high OE in alignment with both Gallagher's (2022) study using the OEQ-II and Guilbault et al.'s (2024) study using the ElemenOE. These analyses aimed to highlight any gender-related patterns in OE expression.

The study also examined OE differences related to disability status. Descriptive statistics were computed for students with and without disabilities, and a Mann-Whitney *U* test was used to compare scores between these two groups. This approach accounted for the smaller sample size in the disability group and ensured that an appropriate statistical method was applied. Age-related trends in OE scores were analyzed using correlation techniques. These correlations provided a means of identifying whether certain OEs increased or decreased with age.

To determine the appropriateness of parametric tests, assumptions of normality were evaluated using the Shapiro-Wilk test, and homogeneity of variances was assessed with Levene's Test. When these assumptions were satisfied, independent samples *t*-tests or ANOVA were employed. In the cases where assumptions were violated, particularly the assumption of normality, non-parametric alternatives such as the Mann-Whitney *U* test were selected to ensure the validity of comparisons. For post-hoc analyses of OE scores across levels of giftedness, Tukey HSD tests were conducted using the Harmonic Mean Sample Size to adjust for unequal group sizes. This analytic approach was selected to align with the data's distributional characteristics and support the accuracy and reliability of statistical inferences.

Results and Discussion

This analysis revealed the prevalence of each of the five overexcitabilities among gifted children, as well as the frequencies of these OEs across different populations: (a) males and females, (b) children with and without a disability, and (c) moderately, highly, and profoundly gifted children. Overall, the results indicated a high incidence of OEs among all gifted children, as well as noticeable differences in the frequencies of some of the OEs corresponding to gender, disability, and levels of giftedness. Results are reported by research question.

RQ1: Which of the five Dąbrowskian overexcitabilities, as measured using the ElemenOE, do caregivers most frequently observe in their gifted children?

For this research question, we obtained the frequencies and average values of parent-reported OE scores across our sample of children (see Table 4). We checked for normality of distribution using Shapiro-Wilk ($p < .05$ for multiple subscales), which suggested that OE scores were not normally distributed in some groups. Intellectual overexcitability was the parents' most frequently observed OE in their gifted children. Intellectual OE yielded the highest mean value (4.39) and displayed the smallest standard deviation ($SD = 0.42$) of all the OEs. Sensual and psychomotor OEs displayed very close results to one another, with respective mean values of 3.36 and 3.59 and standard deviations of 0.84 and 0.79. Finally,

emotional OE displayed a mean value of 4.01 and a standard deviation of 0.68, and imaginational OE displayed the lowest mean value (3.24) and the largest standard deviation (*SD* = 1.11) of all the overexcitabilities.

Mean scores for three subscales (intellectual, psychomotor, and emotional OEs) were at or above the 3.5 cut-off threshold for classification of a "high" OE, indicating an overexcitability in the students' profiles. These results are consistent with Bouchard's (2004) and Ackerman's (1997) findings. The high mean scores for psychomotor OE as compared to prior studies may be partially explained by the young age of the gifted children in the present study. In fact, Ackerman (1997) reported that psychomotor OE may be the best predictor of giftedness among school-age children.

Table 4. Means and standard deviations for OE subscales

Overexcitability	*M*	Median	Mode	*SD*
Intellectual	4.39	4.45	4.73	0.42
Imaginational	3.24	3.33	4.67	1.11
Sensual	3.36	3.5	3.5	0.84
Psychomotor	3.59	3.5	3.5	0.79
Emotional	4.01	4.0	3.5	0.68

RQ2: Are there differences in mean OE scores across different groups of children (e.g., gender, disability status, age, and level of giftedness)?

Gender Differences

For Research Question 2, we conducted a discriminant analysis to ascertain OE differences for students by gender after first checking for homogeneity of variance using Levene's Test. Differences in means across genders are relatively small, indicating that both male and female gifted students showed similar levels of overexcitabilities. The standard deviations also show comparable variability within the gender groups. Males displayed slightly higher mean scores for psychomotor OE, while females displayed higher mean scores for all four of the remaining OEs. The greatest difference was found for emotional OE, with a mean of 4.14 for females as compared to 3.99 for males. These results are similar to earlier findings by both Miller et al. (1994) and Tieso (2007a). Males were markedly more variable in their mean OE scores than females, displaying larger standard deviations for all five OEs. In addition, we performed a *t*-test to examine possible relationships between the mean values of each OE and gender; here, we found statistically significant results for both intellectual and imaginational OEs (*p*-values of 0.023 and <0.001, respectively) but insignificant results for sensual, psychomotor, and emotional OEs (see Table 5).

Table 5. Means and standard deviations for male and female OE scores

Overexcitability	Males (*n* = 86)	Females (*n* = 32)		
	M (SD)	*M (SD)*	*p*-value	Cohen's *d*
Intellectual	4.41 (0.79)	4.43 (0.75)	0.023*	.422
Imaginational	3.11 (1.42)	3.78 (1.13)	0.001*	1.112
Sensual	3.39 (1.33)	3.43 (1.20)	0.870	.860
Psychomotor	3.66 (1.28)	3.55 (1.21)	0.565	.798
Emotional	3.99 (1.06)	4.14 (0.96)	0.811	.662

Note. * Represents $p < 0.05$.

We examined the relationship between gender and a high overall score on the ElemenOE. High OE was defined as a score of 3.5 or greater for the entire scale. The crosstabulation revealed that among females, 27 participants scored high on their overall OE score across all five OEs, and among males, 65 participants scored high OE (see Table 6). This distribution suggests a slightly higher proportion of females with high OE scores.

Table 6. Crosstabulation of gender and OE scores

Gender	OE Score (<3.5)	OE Score (≥3.5)	Total	Proportion with OE Score (≥3.5)
Female	5	27	32	27/32
Male	20	65	85	65/85
Total	25	92	117	92/117

Next, a chi-squared analysis was conducted to assess possible relationships between high OE scores and gender, with "high OE" defined as a score of 3.5 or greater. We found statistically significant results for both imaginational and psychomotor OEs, with *p*-values of 0.01 and 0.04, for chi-squared values of 6.51 and 4.04, respectively (see Table 7). No significant associations were found between gender and intellectual, sensual, or emotional OEs. To standardize effect sizes across uneven groups, Cramér's *V* and Phi coefficients were calculated (φ= -0.086, *V* = 0.086). Both measures indicate a small effect size, and the approximate significance for each was *p* = .352, consistent with the chi-squared results. These findings suggest that while there is a weak relationship between gender and high OE (≥3.5), it is not statistically significant.

Table 7. Chi-square for "high" OE scores by gender

Overexcitability	*n* (%)	Males	Females	χ^2	*p*
Intellectual	116 (98.3%)	84	32	0.00	0.95
Imaginational	53 (44.9%)	32	21	6.51	0.01*
Sensual	65 (55.1%)	48	17	0.00	0.96
Psychomotor	71 (60.2%)	57	14	4.04	0.04*
Emotional	100 (84.7%)	71	29	0.63	0.43

Note. "High" scores of 3.5 or greater. *$p < 0.05$.

The findings regarding associations between OEs and gender are somewhat inconclusive, with only some OEs yielding statistically significant results; however, the results for imaginational OE are readily apparent. Imaginational OE was significantly associated with gender, regarding both the mean OE values and the probability of a high OE (3.5 or greater). Females generally scored higher than males in imaginational OE. In the case of intellectual OE, females also had higher mean scores than males, though by a smaller margin and with a slightly lesser degree of statistical significance. The chi-squared test revealed no statistically significant gender difference in the probability of a high score on one or more of the OEs ($\chi^2 = 0.865$, $p = 0.352$). Essentially, the reverse was found for psychomotor OE. Males scored higher than females in mean psychomotor OE values, though this association did not prove significant, while the association between gender and high OE score was indeed significant. Finally, no significant relationships were found between gender and sensual or emotional OEs for either mean or high OE values.

Overexcitabilities by Disability Status

To examine the relationship between disability status and OE scores, we conducted several statistical tests. First, we ran descriptive analyses to summarize the distribution of participants across disability categories and their corresponding OE scores (see Table 8). Subsequently, we employed non-parametric tests, specifically the Mann-Whitney *U* test, to compare OE subscale scores between participants with and without a documented disability. Effect sizes were calculated where appropriate to quantify the magnitude of differences between groups.

For the survey item asking about student disability status, 116 parents responded. Of those, 18 (15.5%) indicated that their child had one or more disabilities, and 98 (84.5%) responded that their child had not been diagnosed with a disability. Estimates of the prevalence of gifted children who are twice-exceptional and receiving an individualized education plan (IEP) range from 2% to 6%, although this is likely an underestimate (McCormick et al., 2025); however, the sample of students with disabilities in the present study was higher than typically reported. This finding may be explained by the organizations from which we recruited participants. Families who join these organizations may do so because they seek alternatives to inadequate school-based gifted services or acceleration options. These organizations provide resources, programming, and support networks that help address gifted children's educational and emotional needs – resources that families may not have found in their local schools.

To verify disability status, participants were asked whether their child had an IEP for their disability or a 504 plan. In the U.S., the Individuals with Disabilities Act (IDEA) of 2004 (U.S. Department of Education, 2004) requires an IEP for students who need special education services. This legal document includes plans for services, accommodations, or modifications to instruction. Section 504 of the Rehabilitation Act of 1973 provides necessary accommodations for students with disabilities who do not need specialized instruction. This civil rights statute specifically prohibits

discrimination against students with disabilities and guarantees them a free and appropriate public education. Of those who responded, 20 parents were unsure if their child had either an IEP or a 504 plan, 12 reported that their child had an IEP plan, and six participants reported that their child had a 504 plan. It was surprising that so many parents were unaware of the plans in place for their children. This finding might be explained by the different types of schools the children attended, from private to public schools, and the communication established between home and school. It may also be partly explained by the language used in different states that refers to educational plans for students with gifts and talents and those for students with disabilities. In some states, students identified as gifted are required to have an individualized educational plan, but it is not required by federal law. These are sometimes referred to as "gifted education plans" or education plans for the gifted, which may confuse parents because they sound similar to IEPs.

When parents were asked what types of disabilities or learning differences their child had been diagnosed with, they reported the following: attention deficit-hyperactivity disorder (ADHD; $n = 8$), autism spectrum disorder type 1 (ASD1, formerly known as Asperger's; $n = 3$), dysgraphia ($n = 3$), central auditory processing disorder ($n = 2$), anxiety ($n = 2$), dyslexia ($n = 2$), hearing impairment ($n = 1$), visual impairment ($n = 1$), other neurological issue not specified ($n = 1$), and specific learning disability (SLD; $n = 1$).

Table 8. Mean Scores on the ElemenOE According to Disability Status

Overexcitability	**Disability** ($n = 18$)		**No Disability** ($n = 98$)	
	M	*SD*	*M*	*SD*
Intellectual	4.46	0.38	4.42	0.42
Imaginational	3.39	1.04	3.29	1.09
Sensual	3.75	0.47	3.34	0.87
Psychomotor	3.74	0.68	3.62	0.81
Emotional	4.27	0.56	3.98	0.68

Note. Groups are designated according to the self-selection of whether or not a student has a disability. Not all participants responded to this survey item.

The findings revealed that twice-exceptional students had higher mean values than non-disabled children for all five OEs; the difference was large in some cases. For example, children with disabilities outscored non-disabled children in sensual OE (with values of 3.75 and 3.34, respectively) and in emotional OE (with values of 4.27 and 3.98, respectively). However, the difference was small for intellectual OE (with values of 4.46 for children with disabilities and 4.42 for those without disabilities). Intellectual OE also had the highest mean values compared to other subscales for both children with and without disabilities, and it showed the least variability, with standard deviations of 0.38 and 0.42 (for children with and without disabilities, respectively). Meanwhile, imaginational OE showed the lowest mean values for both groups and the greatest variability (with respective means of 3.39 and 3.29 and standard deviations of 1.04 and 1.09 for children with and without disabilities).

A Mann-Whitney *U* test was conducted due to its suitability for comparing independent groups when the assumptions of normality or homogeneity of variances may not hold, as shown in Table 9. This test revealed no statistically significant difference in OE subscale mean scores between the group of students with disabilities and the group without reported disabilities (e.g., intellectual: $U = 841.000$, $p = .805$), indicating that disability status does not appear to impact OE scores across the measured subscales. Although the difference is not statistically significant, it is substantively significant in some cases. For example, children with disabilities have much higher mean sensual OE and emotional OE than children without disabilities in the sample.

Table 9. Mann-Whitney *U* Test for OE subscale scores by disability status

Overexcitability	**Mann-Whitney *U***	**Wilcoxon *W***	***Z* Score**	**Asymp. Sig. (2-tailed)**
Intellectual	841.000	5594.000	-0.247	0.805
Imaginational	800.500	5553.500	-0.560	0.575
Sensual	782.000	5438.000	-0.640	0.522
Psychomotor	779.000	5435.000	-0.662	0.508
Emotional	708.000	879.000	-0.777	0.437

Note. Disability status was used as the grouping variable.

Analysis of OE scores revealed consistently higher means across all subscales for students with disabilities compared to those without, though these differences did not reach statistical significance in Mann-Whitney *U* tests. The most notable differences appeared in sensual and emotional OE, suggesting that students with disabilities may experience heightened sensory and emotional intensities. While statistical significance was not reached, possibly due to the small sample size of twice-exceptional students (n = 18), the consistent pattern of higher OE scores among students with disabilities warrants further investigation with larger samples. Intellectual OE showed only a small difference between groups (4.46 vs. 4.42) and had the highest mean scores overall, indicating strong intellectual intensities regardless of disability status. These findings contribute to our understanding of twice-exceptional students' overexcitabilities.

Differences by Age

A correlation analysis was conducted to examine possible differences in OE scores according to student age. This analysis revealed no statistically significant relationships between age and any of the OE subscales (see Table 10). This finding suggests that age does not meaningfully influence levels of overexcitability traits in this dataset. However, the OEs were found to have statistically and substantively significant correlations with one another. Emotional OE demonstrated strong positive correlations with sensual OE (r = 0.526, p<0.001) and with psychomotor OE (r = 0.597, p<0.001). Sensual OE also showed a strong positive correlation with psychomotor OE (r = 0.479, p<0.001). Moderate correlations were observed between intellectual OE and imaginational OE (r = 0.295, p<0.001), between intellectual OE and emotional OE (r = 0.253, p = .005), and between imaginational OE and emotional OE (r = 0.263, p = .003). No significant correlation was observed between imaginational OE and sensual OE (r = 0.119, p = .174), or between intellectual OE and psychomotor OE (r = 0.160, p = .068). Spearman's rho analysis corroborated these findings, with similar significance levels and effect sizes across the OE subscales.

Table 10. Correlation matrix for age and overexcitability subscales

Variable	Age	Intellectual	Imaginational	Sensual	Psychomotor	Emotional
Age	1	-.035	-.089	.069	.093	.081
		(.707)	(.343)	(.462)	(.325)	(.406)
Intellectual	-.035	1	.295**	.206*	.160	.253**
	(.707)		(<.001)	(.018)	(.068)	(.005)
Imaginational	-.089	.295**	1	.119	.205*	.263**
	(.343)	(<.001)		(.174)	(.019)	(.003)
Sensual	.069	.206*	.119	1	.479**	.526**
	(.462)	(.018)	(.174)		(<.001)	(<.001)
Psychomotor	.093	.160	.205*	.479*	1*	.597**
	(.325)	(.068)	(.019)	(<.001)		(<.001)
Emotional	.081	.253**	.263**	.526**	.597**	1
	(.406)	(.005)	(.003)	(<.001)	(<.001)	

Note. Correlations are Pearson correlation coefficients (r), and p-values are shown in parentheses. ** $p < 0.01$, * $p < 0.05$.

The strong correlations among emotional, sensual, and psychomotor OEs suggest these intensities manifest together, potentially reflecting an underlying pattern of heightened experiential sensitivity and OE profile for this young sample. In Martowska & Romanowicz's (2020) study of adult musicians, a similar profile emerged, where musicians were twice as likely to have high emotional and sensual scores as non-musicians; however, their psychomotor scores were not high. Martowska et al. (2020) also found a similar profile among professional actors, with imaginational, emotional, sensual, and psychomotor OEs reported as higher than those of non-actors. High psychomotor OEs, however, have been noted as one of the greatest distinguishers between gifted and non-gifted student samples across several studies (see Ackerman, 1997; Tieso, 2007b).

In our study, the lack of significant correlations between specific OE pairs (e.g., imaginational-sensual, intellectual-psychomotor) indicates that these traits may develop independently, pointing to the multidimensional nature of overexcitability. Analysis of age-related differences in OE revealed no significant correlations between age and any OE subscales, suggesting that OE traits remain relatively stable across different ages in this sample; however, the lack of age-related differences in OE scores should be interpreted with caution given the narrow age range of participants' children

(4-8 years) and their mean age of 6.94 (*SD* = 1.11). The narrow age span and uneven distribution limit our ability to draw meaningful conclusions about age-related patterns in OE development. A study with a broader age range and a more balanced age distribution would be needed to understand how OEs may change across childhood development.

Differences by Level of Giftedness

Mean OE values were calculated based on students' levels of giftedness (i.e., moderately, highly, or profoundly gifted). See Table 11 for mean scores on each OE by level of giftedness. Consistent across all OEs, the mean values were highest for the profoundly gifted (PG) children. However, there were far fewer PG students in the sample compared to the moderately and highly gifted groups; therefore, this result should be interpreted with caution. This difference was most noticeable for imaginational OE, where the mean values were 3.19 for moderately gifted (MG) learners, 3.33 for highly gifted (HG) learners, and 4.00 for PG learners. The mean values for intellectual and sensual OEs also ascended gradually from MG to HG to PG; meanwhile, for psychomotor and emotional OEs, HG children had lower values than MG children, but PG children had the highest values of all.

Table 11. Mean scores on the ElemenOE according to level of giftedness

OE	**Moderately Gifted** *n* = 46		**Highly Gifted** *n* = 54		**Profoundly Gifted** *n* = 9	
	M	*SD*	*M*	*SD*	*M*	*SD*
Intellectual	4.41	0.76	4.43	0.81	4.63	0.58
Imaginational	3.19	1.38	3.33	1.42	4.00	1.18
Sensual	3.34	1.31	3.44	1.31	3.83	1.11
Psychomotor	3.72	1.24	3.59	1.27	4.11	0.95
Emotional	4.17	0.99	3.98	1.04	4.26	0.85

Note. *N* = 109. Groups are designated according to the level of giftedness based on the following IQ scores: 130 – 144 = moderately gifted, 145 – 159 = highly gifted, and 160+ = profoundly gifted. Not all participants responded to this survey item; some reported they were unsure of their gifted child's level of giftedness.

PG learners' mean scores were noticeably less variable than those of other students in the study, with the smallest standard deviations in the mean value for PG children across all five OEs. This finding may indicate that parents of children at the extreme end of the spectrum observe overexcitable behavior more frequently or consistently, or it may simply reflect the smaller number of PG students in the sample. These results offer further support for using the ElemenOE, at least with profoundly gifted children, to determine OE profiles and related needs. The standard deviations found for MG and HG learners were close in value, with slightly larger standard deviations for HG learners for all OEs other than sensual OE, where the *SD* values were identical.

A one-way ANOVA was performed to compare the mean OE scores for students by level of giftedness group (see Table 12). The one-way ANOVA revealed no statistically significant difference in mean OE scores across levels of giftedness for any of the five OE subscales. Results were as follows: intellectual OE ($F(3, 112) = 1.221$, $p = 0.305$); imaginational OE ($F(3, 112) = .721$, $p = .542$; sensual OE ($F(3, 111) = .378$, $p = .769$; psychomotor OE ($F(3, 111) = 1.179$, $p = .321$; and emotional OE ($F(3, 104) = 1.886$, $p = .137$. The effect sizes were small, except for intellectual OE, which had a large effect size (e.g., Eta-squared = .32), suggesting some variability. These findings highlight that levels of giftedness do not significantly impact OE scores in this sample, except for intellectual OE.

Table 12. ANOVA for Level of Giftedness and OEs

OE Subscale		Sum of Squares	*df*	Mean Square	*F*	*p*	η^2
Intellectual	Between Groups	.652	3	.217	1.221	.305	0.32
	Within Groups	19.9936	112	.178			
	Total	20.588	115				
Imaginational	Between Groups	2.734	3	.911	.721	.542	.019
	Within Groups	141.619	112	1.264			
	Total	144.353	115				
Sensual	Between Groups	.852	3	.284	.378	.769	.010
	Within Groups	83.313	111	.751			
	Total	84.165	114				
Psychomotor	Between Groups	2.244	3	.748	1.179	.321	.031
	Within Groups	70.440	111	.635			
	Total	72.684	114				
Emotional	Between Groups	2.393	3	.798	1.886	.137	.052
	Within Groups	43.986	104	.423			
	Total	46.379	107				

Note. Significant at the $p < .05$ level.

Due to the small sample size for the PG group, we ran a Bonferroni-corrected post hoc analysis to examine pairwise differences in OE subscale scores across levels of giftedness. The results corroborate the findings from the initial ANOVA, showing no statistically significant differences between levels of giftedness for any of the OE subscales. Tukey HSD post-hoc tests confirmed no significant pairwise differences among groups. While effect sizes were small to moderate (e.g., Eta-squared for emotional OE = 0.052), suggesting some variability, these findings highlight that levels of giftedness do not significantly impact OE scores in this sample.

The markedly higher results among profoundly gifted learners point to a positive pattern in the degree of OE and the degree of intellectual ability. Nonetheless, a somewhat surprising finding is that moderately gifted learners sometimes displayed higher mean OEs than highly gifted learners. This unusual result should be further investigated to determine what factors may have contributed to it and whether age or disability interacted with the level of giftedness. This unexpected finding could also be attributable to the varying IQ tests that the children took, as different tests can yield different scores in an individual child, and the use of IQ assessments with gifted children may also be subject to ceiling effects (Irby & Floyd, 2017). Furthermore, the ages of the children in this study may have affected the IQ results, given that the minimum age of the participants was as young as four years old. It should be noted that the IQ scores of PreK-aged children may be especially affected by fatigue or resistance to testing (Bracken & Theodore, 2020).

Conclusion and Recommendations

The results of this exploratory study provide an overview of parents' perceptions of OE expressed in their young, gifted children on the ElemenOE. Many of this study's findings strongly corroborate previous research indicating that OEs are connected to giftedness, particularly higher levels of giftedness. These findings, many of which bolster the results of prior research, suggest the utility of the ElemenOE as an assessment instrument with parents as observers, and they also support a growing understanding of the relationship between OE and high intellectual ability.

In conclusion, this study makes several significant contributions to understanding overexcitabilities in young gifted children. By documenting the prevalence and patterns of OEs in this age group and revealing gender differences in imaginational and psychomotor domains, our research fills an important gap in the literature. The strong positive correlations between certain OE pairs (e.g., emotional, sensual, psychomotor) provide novel insights into how these intensities may interact and manifest in gifted children. Furthermore, by validating the ElemenOE as an effective parent-report instrument, we have equipped researchers, educators, and parents with a valuable tool for identifying and understanding the complex inner experiences of gifted children ages 4-8. This research advances the field by bridging

developmental psychology and gifted education, offering both theoretical understanding and practical applications. Based on these results, we propose several recommendations for researchers and practitioners.

Recommendations for Future Research

Results from this study reveal that the ElemenOE shows promise as an instrument to identify OEs in elementary gifted children. To improve the use of the ElemenOE as a tool to identify overexcitabilities in young, gifted children as perceived by their parents, we suggest that future research be conducted to validate a revised scale following Bouchard's (2004) original suggestion to add back items for both the sensual and imaginational subscales from her original pilot study to balance the five OEs. This revised scale would provide a better balance of items across each of the five OEs and "enable the identification of overexcitabilities through expressions that are less frequently observed, yet significant" (p. 348). Adding these back would result in seven items on each OE, except for the intellectual OE, which has 11. To verify the predictive ability, the revised scale should be tested with intellectually and/or creatively gifted learners and an equal group of non-gifted students.

Moreover, longitudinal studies are also needed to track the stability (or changes) of OEs across time and development. These studies could investigate whether early OE patterns predict later academic and affective outcomes. A follow-up qualitative study could explore how the expression of the participants' children's OE relates to their levels of development (as described in Dąbrowski's TPD) and the interactions between the unique OEs in their profiles. This study should be replicated with a larger sample and more even samples of subgroups for comparison (e.g., by age, gender, and levels of giftedness) to validate these initial results.

Moving forward, the field would benefit from cross-cultural studies examining how overexcitabilities manifest across different societal contexts, neuroimaging research to explore potential neurological correlates of OEs in gifted children, and classroom intervention studies designed to leverage OEs as strengths rather than viewing them as challenges to be managed. Because OEs may manifest differently or be perceived differently across cultural contexts, future research should be conducted to replicate this study with parents from different countries.

Recommendations for Practice

The ElemenOE holds the potential to be highly useful to parents and teachers of young children with OEs as a window into these children's inner experiences and the ways that these experiences may manifest. The results of this study show a powerful link between OEs and giftedness, which is helpful for adults to keep in mind as they encounter certain behaviors in children, including behaviors that may appear perplexing or challenging. Unfortunately, some teachers manage their classrooms to maximize conformity, interpreting and reacting to children's divergent behaviors as a form of defiance. Thus, they require training to understand and appreciate children's distinct points of view (Karasova & Nehyba, 2023). For example, the recognition of a child's strong reaction to a stimulus (such as a loud classroom environment) as a possible sign of sensual OE, rather than as a sign of merely uncooperative behavior, may help a teacher to create an environment better suited to a child with this form of sensitivity. Likewise, it is beneficial for a teacher to recognize a child's deep immersion in a creative project and resistance to transitioning to a different activity as a potential sign of intellectual OE rather than as a sign of mere defiance of classroom expectations.

More broadly, it is helpful to parents and teachers to understand that OEs may manifest in many ways, sometimes as high-energy, externalized behavior (e.g., shouting or running) and sometimes as quieter behavior (e.g., solving puzzles intently for hours). Without understanding overexcitabilities and typical behaviors associated with intellectually and creatively gifted children, teachers may adopt a distinctively negative attitude about gifted children based on a fear of their tendency toward socially divergent, non-conformist behaviors (Geake & Gross, 2008); likewise, parents may struggle to understand their gifted children or to respond to their behavior (Renati et al., 2022), and they may even feel threatened by them (Papadopoulos, 2021). These problems may be magnified in the case of twice-exceptional children, whose intellectual giftedness and disabilities can interact with one another to produce behaviors that other people may find frustrating or confusing (Baldwin et al., 2015; McCormick et al., 2025). Thus, it is vital that both teachers and parents gain a deeper awareness of giftedness, OEs, and the multifaceted needs of highly able and/or highly sensitive

young learners. By continuing to investigate these unique characteristics of gifted children, we can develop more responsive educational environments and family support systems that nurture their exceptional potential. For parents, teachers, counselors, and psychologists working with young, gifted children, we offer the following recommendations for the use of the ElemenOE:

Early OE Identification for Proactive Support at Home and School

Our study revealed that the ElemenOE, when completed by parents of gifted children as young as 4, provides an early glimpse into developing OE patterns. This early identification allows for proactive strategies rather than reactive ones. For example, parents in our study who identified strong intellectual OE in their precocious preschooler could use this information to prepare preschool and kindergarten teachers, hopefully leading to fewer instances of underchallenged behaviors being misdiagnosed as attention deficits. Early childhood teachers could complete the ElemenOE questionnaire and have parents complete it as well to gather data on advanced students who may be displaying OEs. Both perspectives could be combined to provide a holistic picture of an individual child's OE profile and subsequent needs. We recommend that parents share ElemenOE results with their children using developmentally appropriate language (e.g., "your brain gets really excited about stories" for imaginational OE) to foster early self-awareness in their gifted children.

ElemenOE-Informed Counseling Interventions

The parent-completed ElemenOE offers a unique perspective that complements professional observations. Our results suggest that parents detect OE manifestations in home settings that may not be apparent in clinical or educational environments. We recommend that psychologists and counselors incorporate ElemenOE results from parents into their assessments of young, gifted children, particularly when evaluating social-emotional development or potential twice-exceptionality, as the instrument can be used to help parents articulate complex behavioral patterns observed at home. Licensed therapists, counselors, and child psychologists can use the ElemenOE to differentiate between age-related developmental behaviors and true overexcitabilities in young, gifted children.

Limitations

There are several limitations to this study. First, students in this study included those who were previously identified as moderately, highly, or profoundly gifted on different nationally normed individual standardized intelligence tests (e.g., Stanford-Binet-V, Wechsler Intelligence Scale for Children-V). There could be some variations in estimations of their level of giftedness across the different tests. Another limitation is that there were notably more males in this study than females. However, it is possible that male students may be identified as gifted in early elementary school at a higher rate due to how their behaviors are interpreted by teachers (see Lee-Hammond, 2002; Preckel et al., 2015). In addition, the sample of children was primarily White and Asian. The role of the parent (e.g., mother, father, foster parent) completing the online survey was not collected. Some research has indicated notable differences in how mothers vs. fathers describe or interpret their children's behavior (e.g., Yuh, 2017), including autism-associated behaviors (Grebe et al., 2022).

It should also be noted that since the sample of participants was recruited from national organizations that support gifted individuals, the parents are a self-selected group who chose to involve their children in these organizations. In addition, while they were a purposive sample based on specific criteria, participation was based on their willingness to be included in this study and complete the questionnaire. The participants also come from the U.S. While the parents who completed the surveys are not a homogeneous group and represent different geographic regions and different cultural, economic, and linguistic backgrounds, there could be cultural or socioeconomic differences that affect how they interpret their child's behavior and personality. Results should be interpreted in this context and may not be generalizable outside of the U.S. Finally, no empirical studies are available that establish the convergent or divergent validity of the ElemenOE.

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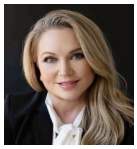
Biodata of Authors



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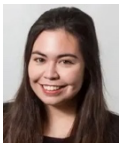

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