

## GIFTED OR AUTISTIC? THE 'GREY ZONE'

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### **Introduction**

In 2004, the first draft-design of the nowadays called 'Dimensional Discrepancy model' (DD-model) was introduced. During the last two years, this model, as well as its conceptual premises, has had a first round of validation, by means of a theoretical exploratory (literature) study. This was recently published in the Dutch scientific journal of special education (Burger-Veltmeijer, 2006a, 2006b).

In this article, the running thread out of these two publications is summarized in a compacted way. The leading question is: How can we improve correct dual diagnoses and assessment of gifted children with (symptoms of) a disorder in the autism spectrum?

In the first paragraph, the causes of incorrect dual diagnoses of the twice-exceptionality 'giftedness and autism spectrum disorder' (GFT+ASD) are summed up. These mutually related causes are synthesized in the so called 'grey zone'. This core part of the DD-model is the borderline area between giftedness with and without ASD (paragraph two). A solution to the diagnostic issue is found in assessment of children in this grey zone, in a needs-based way. For that purpose, this borderline area is made operational in the draft-design of the so called 'DD-checklist', shown in paragraph three. In the near future, this assessment-tool will be validated by methodology of 'design research' (paragraph four). Meantime, creative professionals might already start using the basic ideas.

### **Diagnostic issues**

From literature review is concluded that we face serious problems with correct dual diagnoses of the combination of giftedness and autism spectrum disorders, in individual children and adolescents. Some authors tend to emphasize that the label of autism could hold back giftedness (Barber, 1996; Cash, 1999; Donnelly & Altman, 1994; Grandin, 1992; Webb, Amend, Webb, Goerss, Beljan & Olenchak, 2005). Others are more inclined to warn against one-sided attribution of deficits to giftedness (Gallagher & Gallagher, 2002; Henderson, 2001; Little, 2002; Neihart, 2000). All of them are convinced that a good dual diagnosis is essential to get adequate psychological and educational assistance, treatment and facilities, which are properly tuned to the needs of the individual child.

These diagnostic problems stem from the following mutually related causes:

1. Many characteristics, often ascribed to giftedness, are similar to ASD-symptoms. These similarities are summed up in table 1.
2. The characteristics of giftedness and symptoms of ASD mutually camouflage and distort one another. This phenomenon is clearly demonstrated by the subsequent quote: “Consider combining the social inattention, motor clumsiness, and high verbal skill of Asperger’s Syndrome with such traits as independent thinking, constant questioning, and heightened emotional sensitivity (...). It is the perfect formula for a social pariah.” (Gallagher & Gallagher, 2002).
3. There is no such thing as a clear-cut line between giftedness with and giftedness without ASD. These two conditions are situated at both ends of a continuum. This corresponds to the nowadays accepted notion that the social skills and cognitive styles of autism appear on a continuum (Baron-Cohen & Hammer, 1997; Baron-Cohen et al., 1999a; Baron-Cohen, 2000b; Gillberg, 1992; Happé, 1999; Lawson, Baron-Cohen, & Wheelwright, 2004).

Moreover, correct dual labelling is also hindered by one-sided knowledge and experience of many professionals (Neihart, 2000).

**Table 1.** Similar characteristics of GFT and ASD/GFT+AS.

<b>Similar characteristics of GFT and ASD/GFT+ASD</b>	
<p><i>mentioned by all authors (clustered):</i></p> <ul style="list-style-type: none"> <li>• <b>difficulties in social interaction, e.g.:</b> <ul style="list-style-type: none"> <li>• pay no attention to the other’s perspective or viewpoint,</li> <li>• egocentric,</li> <li>• monopolize conversations,</li> <li>• incessantly talking or asking questions.</li> </ul> </li> <li>• <b>precocity of language and speech patterns, verbal fluency, large vocabulary.</b></li> <li>• <b>advanced memory and cognition, extensive knowledge base.</b></li> <li>• <b>intensity of focus, absorbing interests.</b></li> <li>• <b>social isolation, no friends, tendency towards introversion.</b></li> </ul>	<p><i>mentioned by some authors:</i></p> <ul style="list-style-type: none"> <li>• <b>sensory sensitivity, hypersensitivity to stimuli</b> (Cash; Neihart; Little; Webb).</li> <li>• <b>intense need for stimulation</b> (Cash).</li> <li>• <b>special sense of humor</b> (Neihart; Gallagher &amp; Gallagher).</li> <li>• <b>visual thinking</b> (Cash).</li> <li>• <b>difficulties in conforming to the thinking of others</b> (Cash)</li> <li>• <b>argumentative</b> (Cash).</li> <li>• <b>stubborn</b> (Cash).</li> <li>• <b>uncooperative</b> (Cash).</li> <li>• <b>resistant to teacher domination</b> (Cash).</li> <li>• <b>perfectionist personalities</b> (Cash).</li> <li>• <b>extraordinary levels of performance in a certain area, together with average range in other areas</b> (Neihart).</li> <li>• <b>uneven development, particularly when cognitive development is compared to social and affective development at a young age</b> (Neihart; Webb).</li> <li>• <b>concerned with fairness and justice</b> (Webb).</li> </ul>

(sources: Cash, 1999; Gallagher & Gallagher, 2002; Little, 2002; Neihart, 2000; Webb et al., 2005)

All this leads to the following conclusion: These similarities, in combination with the camouflage and distortion, make characteristics of the combination GFT+ASD vague and unclear. In connection with the continuum-concept, they bring about a grey zone between giftedness without ASD (GFT - ASD) and giftedness plus ASD (GFT + ASD). It is to the interest of many gifted individuals with social skills problems and/or learning problems, that this grey zone will get more attention from now on. Because quite a few of these children are more or less in need of an ASD-like treatment, even though they don't (seem to) have enough symptoms to get an ASD diagnosis. In the following paragraph, this ambiguous area will be explained by means of the 'Dimensional Discrepancy Model'.

### Dimensional Discrepancy Model GFT+ASD (DD Model)

#### Brief description

This model consists of two continuous lines, which are base lines of normal curves. On top the line of cognitive intelligence and below the line of social intelligence (figure1). Giftedness in the cognitive area does not imply giftedness in the area of social intelligence, because both dimensions are independent of each other.

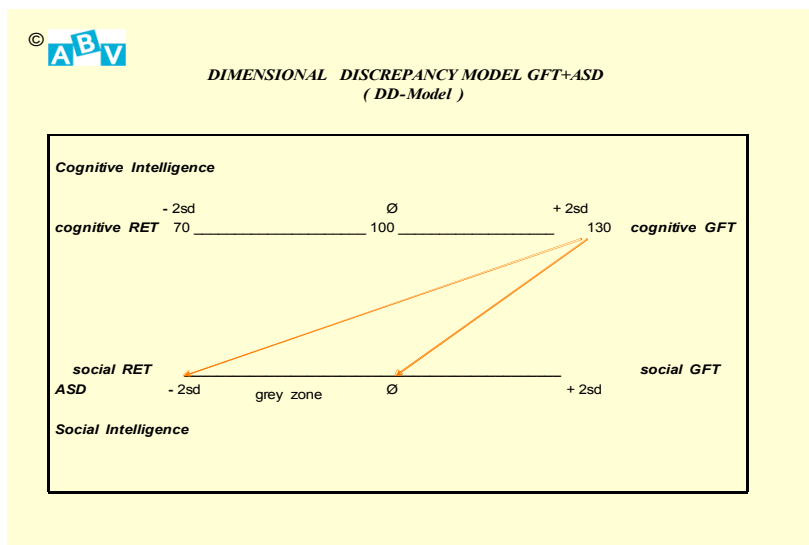


Figure 1. The DD-Model.

Our target group of individuals with GFT + ASD is located on the right side of the line of cognitive intelligence (above 2 sd's from the middle, IQ > 130, the gifted area) and at the same time on the left side at the line of social intelligence (below 2sd's from the middle, the retarded or ASD area). In case of an individual with IQ

= 130, the left arrow accentuates a theoretical discrepancy between the level of cognitive and social intelligence of 4 sd's. The right arrow points from the cognitive gifted area to the 'average level' of social intelligence. It shows, in case of another person with IQ = 130, a discrepancy of 2 sd's between level of cognitive and social intelligence. The DD-model illustrates the idea that gifted individuals, contrary to average intelligent individuals, might already have a disharmonious development (and might suffer from it), if social intelligence resembles the average of the normal population. So, in this model ASD is not defined as an absolute standard for everybody. Instead, the definition is a relative one: ASD is defined in relation to any individual's level of cognitive intelligence, one's IQ.

### **Theoretical validation**

Basic assumptions of this DD-model are:

1. The core problem of ASD (involving Asperger's syndrome, high functioning autism and PDD-NOS) are deficiencies in social interaction and communication.
2. These can be summarized as 'social intelligence'.
3. Cognitive intelligence and social intelligence are independent dimensions.
4. ASD in gifted individuals can be defined by means of a relative comparison between the level of cognitive and social intelligence.

These basic assumptions are theoretically validated in the first round of the total study (Burger-Veltmeijer, 2006b). Underneath, the arguments are mentioned briefly, corresponding with the numbers of above mentioned basic assumptions:

1. In the publications of Tanguay and Robertson (Robertson, Tanguay, L'Ecuyer, Sims & Waltrip, 1999; Tanguay, Robertson & Derrick, 1998) empirical evidence is presented for social communication to be the core deficit of disorders on the autism spectrum. Other problems, like language disorders or sensory-motor abnormalities, are closely related but not necessarily a characteristic. These authors even require that the DSM-IV demand that persons with ASD must have a symptom from the 'restrictive, repetitive' domain (APA, 2000), may have to be rethought. Though, Baron-Cohen and colleagues have a different point of view; these researchers assume the dimension 'systemizing' also to be a core part of ASD (Baron-Cohen, 2002). However, in my opinion, this dimension is not clearly defined and up until now, empirical evidence doesn't seem to be unambiguously convincing (Baron-Cohen, Richler, Bisarya, Gurunathan & Wheelwright, 2003; Lawson, Baron-Cohen & Wheelwright, 2004; Wheelwright et al., 2006).
2. 'Social intelligence' is "the ability to understand the feelings, thoughts, and behaviours of persons, including oneself, and to act appropriately upon that understanding." (Romney & Pyryt, 1999). Core dimension of social intelligence is empathic accuracy (Ickes, 1997). This definition corresponds with

ASD related definitions like 'theory of mind', 'empathy' and 'empathising' (Baron-Cohen et al., 1999a, 1999b).

3. There is conceptual and empirical evidence for social intelligence to be an entity distinct from academic or cognitive intelligence (Baron-Cohen et al., 1999b; Jones & Day, 1996; Romney & Pyryt, 1999). Furthermore, neurological imaging techniques present evidence that social information and cognitive information are processed in different neural networks in the brain. Social intelligence is a valid construct which is neurally distinct from cognitive intelligence (Bar-On, Tranel, Denburg & Bechara, 2003). We seem to have a 'social brain' apart from our 'cognitive brain'. The 'social brain' (the connectivity of the orbito-frontal cortex, amygdala and temporal area's) is hypoactive when persons with ASD are involved in social interaction processes (Baron-Cohen et al., 1999a; Schultz et al., 2004; Volkmar, Lord, Bailey, Schultz & Klin, 2004). The 'cognitive brain' is less circumscribed, but a core part of our cognitive thinking is organized in (dorso)lateral parts of the prefrontal cortex (Anderson, 2002; Gray & Thompson, 2004). So, cognitive and social intelligence are considered to be two distinct entities (Bar-On et al., 2003). (However, as far as we know, the population of individuals with IQ's in the gifted area has never been examined separately, so we do not know the impact of very high IQ on social intelligence. This is a subject for further research).
4. The first version of the DD-model was developed in January 2004, without foreknowledge of Baron-Cohen's E-S model. In this E-S theory however, ASD is also defined in a relative way (Baron-Cohen & Hammer, 1997; Baron-Cohen et al., 1999b; Baron-Cohen, 2000a, 2002; Baron-Cohen et al., 2003; Lawson et al., 2004; Wheelwright et al., 2006). After comparing both models extensively, fundamental figurative and theoretical differences were discovered. These are due to different goals: The DD-model is not aimed to diagnose ASD, like the E-S model. The DD-model serves needs-based assessment, and can be used in psycho-educational contexts. So, we may conclude that a 'relative definition' is not uncommon in research, and the DD-model serves a different purpose from the E-S model. So far, its status apart is justified.

On account of these arguments, the model can be assumed to be viable enough to be further explored by means of design research (paragraph three). More detailed information can be found in the original publication (2006b), which up until now is only written in Dutch.

### **The grey zone**

The focus of today's article is the core part of the DD-model, the so called 'grey zone': The borderline area between giftedness with and without ASD. Figure 1 provides an example of a grey zone, belonging to the population of persons with IQ = 130. It is plotted on the line of social intelligence, between the points of the two

arrows. Whether this grey zone will broaden to the right or merely move to the right in populations with higher IQ's, is unclear. This might be discovered by future empirical research.

Quite a few gifted children we saw in educational and clinical practice, those with communication impairments and/or learning problems, are situated somewhere in this area. Though they do not (seem to) show enough characteristics of ASD to be diagnosed as such, they more or less may be in need of ASD-like treatment and assistance.

The concept of the grey zone serves as a solution to the problem of correct dual diagnosis (see paragraph one). For, instead of focusing on the labelling question: "Is this gifted child suffering from ASD or is he not?", we should pay much more attention to the assessment question: "What are the educational and psychological needs of this gifted child with ASD-like symptoms?". Or vice versa: "What are the needs of this 'ASD-child' with gifted features?" In other words, a shift has to take place from 'labelling diagnosis' to 'needs-based diagnosis'. To be able to do so, the specific symptoms and characteristics of children in the grey zone have to become explicit. In other words, the 'grey zone' area has to be made operational. This is done by means of the so called 'DD-checklist', a concept that will be further explored by design research (Burger-Veltmeijer, 2006b).

### **DD checklist**

The grey zone is made operational in the Dimensional Discrepancy checklist (DD-checklist). Figure 2 illustrates part of the draft design of this list, which is under construction (see paragraph four).

This needs-based assessment observation tool is meant to be an aid to professionals; initially for psychologists, secondly for special needs coordinators and teachers. It helps to unravel the above mentioned similar and camouflaged characteristics into an observable gifted-like manifestation versus an ASD-like manifestation.

The DD-checklist needs to be part of a total assessment, including an IQ-test et cetera. To be able to fill it in properly, the psychologist (or other professional) has to observe the child in every day situations, for instance at school, in the play ground and at home with the family. This is important, because the ASD symptoms of inadequate social interaction cannot be properly observed in a one-to-one testing situation, considering people with normal to high intelligences. It does show up however in less structured everyday real life situations, which are much more difficult to control by means of cognition (Begeer, Meerum Terwogt, Rieffe & Stockmann, 2005).

The observation data, together with quantitative and qualitative data from the total individual assessment and parental interviews, are all needed to be able to fill in the DD-Checklist. This goes as follows:

On account of the above mentioned information, the psychologist decides per similarity (that is, per item) whether the child's behaviour tends towards the manifestation of giftedness without ASD (GFT-ASD, in column 1), or more towards the

manifestation of giftedness plus ASD (GFT+ASD, column 5). Then he decides to what extent the behaviour is similar to the chosen manifestation: column 1 and 5 mean 'very much', column 2 and 4 mean 'obviously but not extreme', column 3 means that the behaviour has *traits of both* manifestations sides. Then the psychologist ticks the right column and moves on to the following item.

In column 6, the psychologist can put advice remarks per item. For instance, when a child has a learning strategy of merely memorizing details, which interfere with school-results (see 5<sup>th</sup> item), the advice might be to teach him how to discriminate between important and unimportant details. If for a specific item no decision can be made yet, more information has to be collected. In that case, column 6 can be ticked off. After the complete list is filled in, a profile can be made, which can be integrated in the total needs-based approach.

In short: The DD-checklist might help us to change our way of thinking from focus on diagnosis to focus on educational and psychological needs.

© ABV		DRAFT DESIGN -DD-CHECKLIST (5 example items)						
similar characteristics	≠	manifestation in case of GFT - ASD	grey zone			manifestation in case of GFT + ASD	> Info	needs - based advice
0		1	2	3	4	5	6	7
<i>social interaction and communication :</i>								
social isolation , no friends		shortage of 'interest peers ' or 'like-minded ' friends; lack of tolerance; independent of Age Mates, but knows how to make friends				lack of Theory of Mind, socially inept, lack of empathy; unskilled with Age Mates, and unaware of how to make friends		
aware of being different		know they are different, can reason why; aware of another 's perspective and viewpoint				know they are different, poor awareness of why; unaware of another 's perspective and viewpoint		
precocious language, speech patterns highly verbal, fluent speech		original, creative speech, normal, but may have language of older child				delayed echolalia, monotonous, repetitive, pedantic, seamless speech		
<i>restricted, repetitive behaviour, and interests :</i>								
absorbing interests		interested in many things, passionate fascination, can be distracted from it				one topic of interest, cannot shift attention to other things		
advanced memory and knowledge		advanced understanding, holistic meaningful learning; more selective, filter out, discard certain sources of information				advanced memorization, fragmented learning, preoccupation with details; enjoys 'rote' exercises, (obsessively) memorize everything,		
0		1	2	3	4	5	6	7

Figure 2. Draft Design DD-Checklist, containing 5 item-examples.

### Concluding reflections

The draft design of the DD-model and the DD-checklist may be assumed to be viable enough, to continue the validation process. Analytical researchers might object to the concept 'discrepancy' though, because it is in contradiction to the fact that the two dimensions are assumed to be independent to each other. For, by definition, a difference between unrelated things cannot be a discrepancy.

But research is contradictory in this. For instance Baron-Cohen (Baron-Cohen et al., 2003; Lawson et al., 2004) uses the concept ‘discrepancy’ in a similar way. Furthermore, the issue here is the gap between scientific theory and psychological and educational practice: In the DD-model, the concept ‘discrepancy’ is not related to statistical proven differences between large groups of variables or populations. It has, on the contrary, an individual meaning: ‘Discrepancy’ in the DD-model sheds light on the pervasive problems that gifted people with neglected (symptoms of) ASD (and vice versa, persons with ASD and neglected giftedness) face in everyday life, where the demands often are not tuned to their specific social and intellectual capabilities. Because of the huge difference in capacities, they face overestimation or underestimation. This justifies the term ‘discrepancy’. The aim of the DD-model is to clarify these problems. For example, it can be used in psycho-education for parents, teachers and others who are closely related to gifted persons with (characteristics of) ASD.

To me, all of this proves that the DD-model, with its grey zone, is needed to bridge the gap between scientific theory and everyday practice. For that reason, I chose a methodology of design research. In the near future, the DD-checklist will be validated by this qualitative research methodology. It is commonly used in technical science and gradually accepted in educational and psychological science. It is a way to bridge the gap between scientific and practical knowledge (De Jong & Van der Voordt, 2002; Vandenberghe, 2005).

Even though the checklist is not ready yet, psychologists, special needs coordinators and teachers can already start using the basic idea of it: If you are in doubt whether a particular gifted pupil has ASD, or needs ASD-like treatment, you should try to focus on unravelling similar characteristics like summed up in table 1 and figure 2. Then, decide per item whether the child inclines towards the GFT-ASD manifestation or towards the GFT+ASD manifestation, and tune your educational and psychological approach to a more ‘gifted-like’ or ‘ASD-like’ approach for several weeks. Then fill in your list again, to evaluate the behavioural and learning progress. Readjust the approach when necessary. When the total profile of a pupil tends strongly towards the right side (column 4 and 5), then consider if a diagnosis ASD is needed for this child. Good luck!

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