

Dual Exceptionality

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Introduction

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Twice exceptional (2e), doubled labelled, gifted with a learning disability (GLD) are all terms used to describe a unique subset of the gifted population. Research indicates that the incidence of these students ranges from 2.5% to 36% of the gifted population (Baum & Owen, 1988; Silverman, 1989; Whitmore, 1981). Rogers (2010), though, found a total of 14% demonstrated some form of twice exceptionality. In addition she noted that 3% of gifted students demonstrated specific learning disabilities, 7% ADHD characteristics, 3% emotional behavioural disorders and 1% Autism Spectrum Disorders.

Baum, Owen and Dixon (1991) identified three subgroups of GLD students. The first group are students identified as gifted who have subtle learning disabilities, which become apparent as the level of work undertaken at school increases in difficulty. This group is often placed in programs for gifted students, but creates frustration for the teacher and the students as they fail to reach expected outcomes the more difficult the work becomes. The second group are those who are not identified as gifted or having a learning disability because they are achieving at a grade level. These students will fail to reach their potential as they will be working very hard to maintain grades. The third group are the students who are identified for their learning disability. These students are often placed in remedial programs. The possibility that they may be gifted is not even considered or identified.

In this book, many of the authors highlighted the importance of appropriate identification strategies for these students. Carol Barnes, a parent of GLD children, provides a list of early warning signs that these children may exhibit. Munro's study indicated the type of tasks that could be used to identify the learning patterns of GLD students. Rogers provided eleven strategies for identification of these students. They are:

1. A tiered system of identification is needed.
2. There is a need for an identification team to identify precisely.
3. The identification team needs to be trained in using an identification protocol.
4. The WISC-4 is valuable in providing "inclusive" data on potential twice exceptional children.
5. Don't look far from the "family tree".
6. Finding twice exceptional children may be easier in gifted self-contained classrooms than in mixed ability classrooms.
7. It is critical to look harder than we have previously for eligible girls.

8. Identification for twice exceptional may have developmental differences to some degree.
9. The school nurse may be one of the best identifiers of twice exceptionality.
10. It is important to help parents understand the importance of early identification.
11. We must look in three places for twice exceptionality.

Wormald suggests that one of the reasons for a lack of identification of this population of students is the difficulty defining it. Currently there are separate definitions for giftedness and learning disabilities. Holmes and Sutherland studied gifted mathematicians with Asperger's Syndrome and found that if teachers were more aware of these students, they would be able to provide appropriate strategies for the students to implement in the classroom. Alamiri acknowledges the puzzle that gifted students may present but notes the even greater challenges that a GLD student with ADHD will provide in a classroom, especially a mainstream one. Yen expresses real concern about GLD students in classrooms in Taipei.

After identifying GLD students, all authors expressed concern about the type of educational programs that these students are presented in schools. Alamari, Spicer, Hill, Munro, Rogers, Yen suggest specific intervention programs for these students. Spicer, in her case study, very clearly outlines the consequences when a student is not identified and appropriate educational programs implemented for a GLD student. Spicer advocates the use of technology to meet these students' educational needs.

Rogers' research produced thirteen strategies that were found to be successful with Year 4 GLD students in the United States. These strategies are:

1. No single strategy that addresses a gap be it cognitive, affective, behavioural, or physical works for long. It is necessary to have a long list of possibles.
2. Strategies must be developed and integrated within the differentiated curriculum to cover several components of the "whole learner".
3. A child "profiling" team must plan the specific strategies that address the child's strengths and weaknesses.
4. It is important to not "water down" the gifted curriculum provided for the 2e child.
5. Use an ORR chart (Observation-Reflect-Respond) to help identify ways to respond to the child's strengths in the classroom.
6. Consider the severity or degree of the disability or disorder in deciding which accommodation tools to use.
7. Use gifted/talented peers or "buddies" to model appropriate skills in the classroom, playground, and during transitions.
8. Provide alternative means for assessing the achievement of curriculum outcomes for the child with twice exceptionality.
9. Divide longer term projects assigned into small pieces with steps the 2e child can check off.
10. Work directly and collaboratively with the child to design rubrics on how the work will be assessed.

11. Reinforce all instructions and expectations directly with the child, asking him or her to sequence the activities after the lesson or event.
12. Consider adjustments in time for project deadlines, test taking, and reading of material.
13. Provide direct memory training, plus associative, mnemonic, and environmental cues and prompts to build working memory.

A greater understanding and awareness of this population of students is suggested by Wormald in order for teachers to be able to meet their unique educational needs. This was also highlighted by Holmes and Sutherland who implemented professional development programs for teachers in their school to increase the teachers' understanding and awareness of mathematically gifted Asperger's students. Alamari also notes in his research that teacher understanding and knowledge is vital in order to meet GLD students' needs in the classroom.

Social and emotional development of these students is discussed by Hill and Spicer. Additionally, the interaction between emotional attachment and GLD was researched by Wellisch, Brown, Taylor, Knight and Berresford. Their work demonstrated that there is some correlation between IQ and emotional attachment.

In conclusion, each of the authors highlight the importance of identification, appropriate educational programming, and strategies to meet their social and emotional needs as imperative, if GLD students are to have any hope of reaching their potential. In order to achieve this several of the researchers noted that training was an essential for teachers so that they have an understanding of these students, their characteristics, differences, strengths and weaknesses. Training and support will mean that GLD students will be identified and provided with an appropriate educational program.

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Helping Gifted Children with Autism Spectrum Disorders Succeed

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NOTE: The following is a transcript of a workshop delivered on 29 July, 2010

We know a lot about working with this population. Kenneth Poon and I did a little book for Prufrock last year as part of their practitioner series. It's very small, it's only eighty pages. Ah, so I've really thought carefully about how to structure our time, so I want to compact the curriculum and not spend time on things that you already know. Five years ago I would've had to spend some time talking about what autism spectrum disorders are and do a little background but I'm assuming that that's not necessary this year, any more. I think people have a pretty good idea of it. Do you know that in the next clinical diagnostic manual there will be no more Asperger's, that Asperger's is on its way out as the diagnostic category? Okay, so that may be news to you. That's why we named the book "Gifted Children with Autism Spectrum Disorders", the new category will be autism spectrum disorders and we'll just globally talk about kids with ASD and we will not be making these distinctions. This is because the research, particularly the brain research, has not indicated any clear distinction that we can use reliably to differentially diagnose those kids. So that's why we're not using Asperger's as a term any more; it's going to be old news in a few years.

I made the assumption, right or wrong, that what people are probably most interested in are strategies on how to deal with their challenging behaviours. So much of my material this afternoon focuses on that. What do we know about how to effectively meet their needs and engage them at school and what's realistic?

So the big understanding, for those of you who are familiar with this particular curriculum model, the big understanding is that to develop children's talent when they have ASD, you have to provide an appropriate level of challenge while accommodating the disability. That's what I talked about this morning with the type profiles [see Appendix 1], that's the paradigm. So you've got to develop a talent while accommodating disability. But the guiding question for kids with ASD is, "What kinds of accommodation should be a priority?" And you can't do everything, so what should be the priority. I've organised the material according to four broad problem areas which are challenge areas and their disabilities: coping with sensory integration problems; managing special interests (the kids who only want to talk about Victoria Records); coping with organisational and planning difficulties (which is what really frustrates a lot of parents and teachers, these kids can be brilliant and very messy); and, developing social competence (which is the key to long term success, and is

unfortunately overlooked in many gifted programs, or just school programs. People just get so content with helping them to succeed academically and managing them, that they don't think about the long term). These kids have to develop some social competence, in order to succeed at the university and to move beyond there and be employable. You can't be employed if you don't have some social competence.

So that's the broad overview of what we're going to do. A very useful book, if you're not familiar with Kathryn Stewart's book, this is excellent. Kathryn Stewart is the principal of Orion Academy in Monterey Bay, California and she runs a special school for gifted kids with Autism Spectrum Disorders. She's been doing it a while. It's a day school and she's written a book about all kinds of strategies. It reads a little bit like a recipe book, so it's very useful for teachers. It's a nice reference for parents, she wrote it for parents, so it's geared for parents but here's what you do about various problems and she's written it from her own experience. I think it's excellent, probably one of the best parent guide books that I've seen on the topic.

Where I'm going to start is I'm just going to touch very briefly on why they act the way they do so that you understand what's going on. But, very quickly, they lack a theory of mind, which is the ability to understand that other people have thoughts or feelings that are different from your own. This is while they are unable to take the perspective of somebody else. And it creates interesting kinds of challenges, academically and socially. This is one of the reasons why they have so much trouble with reciprocal communication. They don't know what it's like for you. And they don't have that awareness of what it's like for other people. So, and this is why explaining it over and over again doesn't work either, you can talk yourself blue about why they shouldn't do what they're doing or they should do something else and they are not able to execute it. Not always but most of the time.

So they cannot read the feelings and thoughts of other people. They have to learn how to do that, and they are going to be limited in how they can do that. So they lack theory of mind. It's not a bad thing, it's just different. When you aren't able to take perspective of somebody else you can be very easily victimised and bullied because you don't get it, you can't read the tone, you can't judge that the reason this other person is befriending you is not to be your friend, it's to make fun of you. They don't pick up on the nuances at all. And they assume that others think and feel the same way they do. They can't make those distinctions. So they may hurt other people without realising it. And they don't understand that other people are irritated or annoyed by some of their behaviour.

Now, what's good about Autism Spectrum Disorders? By the way, Autism Spectrum Disorders, I'm using this broad term because we're not going to distinguish it, but one way to think about it is a continuum. You've got classic autism at one end, which are usually kids who have below average intelligence and then you've got Asperger's and you've got high functioning autism, which is usually a lower IQ than say Asperger's, and then you've got developmental, pervasive developmental disorder NOS, which is sort of the catch all for kids who don't fit any of the other categories. But the research is saying you can't make those distinctions. So I'm not going to make them. They lack theory of mind, and they're generally categorised by two things. One is they have severe deficits in social communication and they also manifest some kind of

behavioural stereotypy, which is a repetitive behaviour. And with some of the gifted kids it can be very small, it can be a very minor behaviour.

Now with classical autism you see the flapping, the waving, the spinning, that's stereotypy, a repetitive behaviour that they do, but with more of the higher functioning kids it can be something small, very small, like picking at your shirt. I had a gifted kid who picked at the threads on her clothing and she totally unravelled her gym shorts in middle-school PE one day, just pulled on a thread until she had totally taken her gym shorts off. Or opening and closing a book repetitively, clicking a pen.

What's good about an autism spectrum disorder? There's lots of things that's good about it, what are some of the things? They're very straight, you always know what they think. They're very honest, some people think they cannot lie, they learn it though. Very focused. Some very successful people with ASD would attribute their success to the fact that they can focus so well. Loyalty, they're extremely loyal.

I have a friend in Singapore who is about eighteen, I met her when she was sixteen and she has Autism Spectrum Disorder and there are days when I am very annoyed by her but many times I say to myself, "She'll be a friend for life." She's very loyal and she's very dependable and she's really reliable and she's extremely honest and that is a great friend to have. There aren't too many friends around that we can say that about, so I really appreciate that about her.

When they're teenagers they never go out so you don't have to worry about them.

That they blame adults for everything, can have to do with cognitive rigidity: that they get fixed on one solution to something, one idea about something. It's very difficult to get them to shift. That might be what it is.

They can be fantastic with computers because a computer is very easy to read, a computer is very straight, you don't have emotional problems. You can communicate with a computer very directly and they don't get sidetracked or confused with all the emotional nuances that happen with people.

So these kids have a very uniquely interesting perspective on the world and a strong sense of right or wrong. So we want to try and harness some of that. They also, in terms of learning, have maybe three or four learning strengths. Frequently the gifted kids with Autism Spectrum Disorders, they have a very good memory. I've seen some kids with photographic memories who have ASD, really good short-term and long-term memories. And a great knowledge base as a result. By the time they enter school, some of them know a lot about stuff. And they do very well in subjects that are strongly structured, oftentimes. And they usually have a very good vocabulary.

So what are some of the typical learning challenges? Trying to be consistent with them, because they need the consistency.

Writing a narrative, they don't do well because they can't take other people's perspective. There's all kinds of writing and reading exercises that you either can't do or you refuse to do because it's not possible. There was a teenage boy who refused to

write any kind of fiction, because it's not true. So why would you write something that's not true? You see the logic of that? He's honest, "It's not true, so I'm not writing it. It's ridiculous." And he can't do inference, he can't read between the lines necessarily, because they don't have that capacity.

They can get really fixed and be very resistant to doing other things; they're very messy and disorganised and they don't have particularly good information processing speed, which can be problematic if they're in advanced or accelerated classes.

They'll correct the teacher in the classroom. And they don't necessarily like the review of things, although that's common with gifted kids generally, "If I know it already I don't want to spend time on it!" But they don't have as much patience for that. They're black or white thinkers, they don't do ambiguity. They have a high need for structure and that has to do with their own anxiety management. The structure helps them relieve their anxiety. It's not that they're being rebellious or resistant to you, it's that adding a lot of structure helps them to have a sense of control and when things change they get extremely anxious because they can't anticipate change and just because it happened that way yesterday doesn't mean that they would get it today. They need to see it in order to get it. So hence they have a lot of difficulty predicting outcomes for things.

They have a lot of difficulty working with others because of their social communication problems. Other kids are annoyed by their behaviours. Other kids don't get it unless you educate the other kids about why they do the things they do, and they aren't able to figure it out, so the group work can be really tough.

And many of them have fine motor deficits, at least half, and some of them have poor handwriting. I already mentioned the literature and they don't generalise.

Okay, this is an interesting checklist that Kenneth Poon and I published in our little book (see over page). This is to see how ready and able your school is to handle, effectively, a gifted child with Autism Spectrum Disorders. Do you have these things in place? How many of you have the same plan in place across the school for a child with Autism Spectrum Disorder? That is everybody in the school knows what to do when this kid has a meltdown. A schoolwide plan, everybody knows if you run into this kid and she's doing this, this is what you do. Or this is this kid's "I need help" signal. The kid's got an "I need help" signal and everybody on staff knows what that signal is.

Something to keep in mind, it's true not just for these kids but for all twice exceptional kids, but it is really key for the Autism Spectrum Disorders: long term success, I'm talking about graduating from the university and getting a job, just getting employed, the key is social competence, not your academics. So when you write those IEPs, you write your educational plans, you're working with the family...we need to have a plan for how we're going to build social competence over time, so they can make those changes.

- A simple plan has been established with the child regarding what to do when he or she doesn't know what to do.
- The same plan is used schoolwide
- Time is allotted during the school day for the child's special interests.
- An appropriate level of challenge is provided, especially in the child's areas of strength.
- Information is presented visually to the greatest extent possible (e.g., schedules, instructions, lectures, outlines, deadlines, main ideas, etc).
- Persistence to completion and a willingness to work more slowly than gifted classmates is positively reinforced.
- Timed tasks are avoided.
- Planning occurs ahead of time for special events, and the child is allowed extra options for reducing sensory overload.
- Whenever possible, additional time for completing assignments is granted.
- There are frequent checks for understanding and it is never assumed that the child's comprehension matches his or her verbal or computation ability.
- Teasing and bullying are monitored closely and interventions are implemented immediately when such behavior is observed.
- There is resistance to conclude that the child is careless, lazy, or defiant.

The only large study on gifted kids with ASD that has been done so far was funded by the federal government in the US, through the University of Northern Iowa, at the Connie Belin and Jacqueline Blank Centre, and they are looking at 32 kids in-depth, 26 boys and 6 girls. It's much more common among boys than it is among girls. Some of the key findings from the study are: in the domain of socialisation, overall, these 32 kids were in the borderline range of socialisation, fifth percentile in social competence. So extremely low, lower than some of your low functioning kids. No student in the study was in the average range, everybody was below average in their socialisation. And most of them, 40% were in the borderline range of socialisation.

They're on opposite ends of the continuum in terms of their cognitive ability and their socialisation abilities. We're talking tenth percentile or below versus ninetieth percentile or above. You see why they're frustrated? And why other people are frustrated with them? I mean, it's a small sample but it's a national sample and it's the best thing that we have so far. So this is what's probably going on for a lot of kids with Autism Spectrum Disorders, very low in their socialisation ability because of their social communication problems. We do want to develop their strengths but you have to accommodate and you have to do some remediation of their socialisation or they're not going to succeed at university.

So what does that mean? They have extremely large discrepancies and it confuses the child as well as the people who work with them, "If you're so smart, how come you're so stupid?! How come these things are so easy and these things are impossible?" So we need to do some education with them, and with the families. So in terms of broad conclusions, what the Iowa team said was that the verbal and non-verbal reasoning skills are typically much stronger than their working memory and processing speech

skills. The breakdown of cognitive function shows that their working memory and processing speed is quite a bit lower than their vocabulary and non-verbal reasoning.

Interestingly, the psycho-social profile, the way that parents and teachers saw them psycho-socially are similar, but very different from how the kids see themselves psycho-socially. Eighty-five percent of the kids reported positive self-esteem. So their perception is they think they have friends. My friend in Singapore thinks she has lots of friends, she has over five hundred people on her Facebook page. Is she spending time with any of them? No. Does she talk to any of them on the phone? No. Is she emailing any of them even? No. She doesn't have a social life with them, but her perception is that she has lots of friends because she's got over five hundred on her Facebook page. So the student's self perceptions are usually not consistent with teacher and parent perceptions.

Now just some overall tips, I want to focus on what to do, about how we respond. Some beginning teachers, to whom all of this is brand new, watch the tone of instruction. These kids are going to misread the emotional tone. So one of the things that I personally have to watch out for is, my nieces will tell you that I have a teacher voice, and it can have an edge to it. I tend to speak, my articulation is kind of crisp anyway, and so I can be perceived as having an edge to me and some kids will read that as I'm really angry, or I'm upset with them. So I have to constantly relax myself, say less. The more you say, the more likely it is you're going to confuse them and they're going to get lost. It's tempting sometimes, because they're so bright, to do a lot of explaining, and sometimes teachers will feel like they're so abrupt they feel rude, but it's better to be abrupt. Be as brief as you can, say as little as you can, visual, visual, visual. Make everything visual that you can.

So you're going to do psycho-education about autism, not just with them but also with their classmates. Other kids will extend much more grace to them if they understand what's going on. And be straightforward and direct, even to the point that it feels kind of rude to you. You aren't being rude. They won't perceive you as rude at all, and it's kind of fun. In fact one of the things that's really easy for me to do with kids with ASD generally is talk about sex, and boys and girl relationships, because they don't get it that you're not supposed to be talking about that or be discreet. So I've said to parents, you know the wonderful thing is I know exactly what she's going to be doing with her boyfriends because I'm just going to ask and she's just going to tell me. And I can be quite explicit, be very straightforward with her and she's not going to get uncomfortable, she's not going to get embarrassed, because we're just having a conversation about sex, you know, it's just sex. So that can be useful.

Watch your use of sarcasm. They're not going to get sarcasm, idioms, metaphors, those are very confusing, figures of speech. These are very literal kids and they will get confused in class. You know, you could say, "Chill out", and they'll think, "Chill out? How do I do that? What does that mean?"

Check for understanding often. These kids can, because they're so verbal, you may think they understand because they can just parrot back or they can just describe something, but they may not get it at all. Check for understanding. Ask them to

explain what they think, what you've said, and put it into their own words. I'm surprised at how often they can't do it.

And the last thing: be careful about acquiring eye contact. Eye contact can make them very anxious. You may have a lot of difficulty doing it. It can feel very disturbing to them. Working on eye contact is important, because in the real world, outside of school, you need to be able to some eye contact. But just be careful about how you require that.

Let's talk about sensory integration problems. What are sensory integration problems? What does that mean? It means they have trouble filtering or making sense of sensory information. And there are about eight different kinds of sensory information in addition to your vision, your sight and your tactile sense. You also have proprioception, you have sensory information that comes from your inside, like the pressure between your joints is information. And they can either overlook it, they don't filter enough of it out perhaps, or they filter too much of it out. So they've got incoming sensory information difficulties and also making sense of it, translating the information into some kind of response. So this is why many of these kids are overstimulated at school. They get too much sensory information. And this is what frequently causes their meltdowns, or acting out behaviour or heightens their stress level. They're getting too much sensory overload. So they can hear things other kids don't hear, like the hum in a room, something we don't generally hear may seem very, very loud to a gifted child with autism, so distracting it might hurt their ears. It's possible that they have such auditory sensory information that it may hurt them. So some of you have wonderful classrooms with lots of interesting things going on and it's too much sensory information for these kids. So they can be very reactive to stimuli. And in fact some kids might do very well at the beginning of the day and they have a meltdown two hours later, and what you don't realise is that by the end of two hours they're just overloaded. So they can't do a full day in all that sensory information. Also, once they get over stimulated they're very slow to recover, so what you want to work on is preventing the stimulation. You want to prevent them from getting overloaded, because once they get overloaded then you better have a plan in place for how you're going to help them get de-stressed.

Ausience: So why would some kids take the insert out of their football boots?

Some kids actually want more sensory information, but there might be a seam on the insert. They might be able to feel the seam on the edge of it. I mean even gifted kids without ASD have a lot of tactile or sensory integration difficulties. They don't want to wear mittens because there's those little threads in there, or they don't like the tags on the back of their shirts, things like that really distract them.

So when you have a gifted child with ASD who has behaviour problems, consider that the problem might be related to sensory overload. And they might not be able to tell you that. They might not realise that that's what's going on. So getting an assessment by an occupational therapist to find out what kind of sensory integration challenges they're dealing with can be useful, because then you can do some strategies for building their sensory tolerance and improving. You can develop your sensory integration.

Very broadly, in a classroom situation, in terms of addressing sensory integration, first you want to understand their needs. Hopefully parents have got that information, about what kind of sensory integration challenges they have, and parents of course need to communicate that. Parents are great, they have so much information and that needs to be maximised. Parents are one of the best resources.

Involve their classmates, explain to them that everybody has different needs for dealing with sensory information, different things bother different people, for example there are no windows in this room and I will only last so long in a box. Have the students share examples. Talking about it as a class, and talking about how we can lay out the classroom to accommodate as many people as possible and make the classroom a place where everybody can learn at their best.

Then you also want to schedule down-time for some kids who you know are going to be overloaded on a regular basis. For example, I know a middle-school kid who we just plan that every two hours she just goes to the nurse's office to do a few sensory integration exercises to keep her de-stressed. She has a sensitivity to proprioception information so she does squeezes, body presses and joint stimulation, just for ten or fifteen minutes so that she can handle the overload. Provide items that help avert sensory overload — like sunglasses for the light; or earplugs to reduce the noise input; a weighted vest which you can buy but are very easy to make as well — for kids who have proprioception problems to help them stay grounded. They can wear it underneath their sweater or shirt so they feel more stable. Also, aromatherapy lotions for kids who are bothered by scents.

Sometimes you need a home base, a place in the classroom or in the school where they can go that there's very little sensory stimulation. Then, when they start to feel anxious or overloaded, they can go there. And squeeze balls, that will give them that proprioception input. Establishing that home base, that's what that's about.

You're still going to have stressful situations. You can't control everything, so plan ahead. What's your plan for when things don't work?

First of all, in a crisis, you take your own pulse first. Stay calm. And in particular, switch to writing for communication instead of talking in a high stress situation. When they get really anxious and start acting out, then I get anxious also and maybe my voice tone changes, maybe the pace of my speech changes and talking is going to communicate the wrong thing to them. Then they're going to think that I'm upset because I'm talking faster and my voice is higher and I don't want to go there. As a result I'm going to escalate them instead of de-escalating them. So it's helpful to stay calm and write. Switch the communication back and forth through writing, then they'll relax some. And write out their choices: *I can see that you're agitated, would you like to go to home base or would you like to go down to the...whatever your alternative plan is. Would you like to get on the internet and maybe they can use their specialised interests for ten minutes.* Teach them how to relax. The way that they find relaxation may not necessarily be the way we find relaxation. You have to work with them. What really soothes them? What is self-soothing? For example, our general strategy is thinking about a beautiful place, imagine that you're there...that can be

scary to them. It can escalate their anxieties. There was a gifted kid whose relaxation strategy was to count prime numbers, he loved to count prime numbers, and he counted them, it was very soothing to him. It annoys other people when he's counting all the time but for him, he just goes into his head and counts those prime numbers, up to the thousands. It relaxes him.

SUDs stands for subjective units of distress. Make sure you have a strategy that the child can communicate to you what their stress level is. Have a cue for how and when they're going to take a break. Whether you're going to cue them or they're going to cue you. So it's an 'I need help' signal and every child in school should know what that child's 'I need help' signal is. One of the first things I would teach to a child with ASD is what to do when you don't know what to do. Because they're not going to know what to do a lot, and they'll be anxious because they don't know what to do. They're going to be more anxious than you think. So if you have a plan on what to do when you don't know what to do, they won't be so anxious and you'll have fewer meltdowns.

A visual strategy that has a choice that they can use to communicate, they can cue the teacher, "I'm in trouble, I need some help." And they have the options already there, and they're in control of it. But there are kids who will manipulate and abuse those kinds of systems.

Later in the day they are going to get tired or fatigued, many of them, and also that certain kinds of situations where you can't control the sensory load so much, you're going to have to plan for, like lunch, recess, assemblies. They may not be able to do it, they may need to be excused early so that they're not in the hall with the crowds, they get to leave five minutes early so they get to the lunchroom before anyone else does, or that they don't eat their lunch in the lunchroom, they get their lunch some place else. Because why would you want to have a major sensory overload meltdown at noon that's going to take two hours to recover from? It's not worth it. Or the bus, maybe they need special seating on the bus in order to handle that. So think about certain kinds of situations that either come up every day or are going to come up on a regular basis that you're going to have to have an alternative plan for where they can't fully participate. Assemblies may just be out of the question, they may not be able to do assemblies because the noise level makes them crazy.

It's not always so obvious and that's why parents are a great resource because when you live with them all day long for years, you learn. I remember a dad who was kind of upset because he had really tried to help the school and he had brought 450 pages worth of information to the school for the teacher at the beginning of the school year and he didn't get as positive a response from the teacher as he had hoped. You have to form those collaborative partnerships right away.

Let's go on to managing special interests. Many of these kids have interests, and often they're highly unusual, and they tend to fall into one of three categories: they're either really interested in a particular object, like old records, or antique trains, or a person, comics, or recipes; or topics, they often have one thing in particular that they want to talk about a lot. So how can we manage that? Well, it's tough. It is tough. Just keep in mind that those special interests serve a purpose. Often times they're related to

managing anxiety and self-soothing, so the reason that they are always switching the subject and wanting to talk about their special interest is because they're so anxious in the social situation and talking about their special interest keeps them calm. They don't get it that other people get annoyed pretty quickly with that. So those special interests actually serve a purpose. Now it's not always about relaxation or anxiety, sometimes it might be about identity or about keeping yourself engaged, maintaining attention. There's a number of purposes that it might serve.

It's difficult and unhelpful to try and change those interests. So give that up. Generally, don't work on trying to change their special interest. Instead, think about the special interest as latent talents to be managed. Not always so easy. Use it as a motivational tool, that if they spend so much time on this exercise that they're not so keen to be doing, that there's an exchange going on — if you spend 40 minutes on this, you get 10 minutes with your special interest. Work it into the curriculum. Or a relaxation aid. Maybe as a means of career or talent development, if that's possible. If you can tie their interests into some kind of career possibility, maybe the topic can't be worked in but maybe the types of tasks that they do in pursuit of that topic can be. And as a means, of course, of connecting with others, finding other people who have similar interests, often online if not in your immediate community.

You probably need to structure the time, the intensity, the frequency, the duration, or place where they can engage in those special interests. You can't eliminate it, but you can structure it. At least it will help you feel a little bit more in control, it might help their classmates to feel more in control. Even using a timer. Sometimes I say to my friend, "Okay, we've talked about that long enough, now we're going to talk about this. After we've talked about three other things, then we'll come back to that." So even just in the course of talking to her, I structure when and how much we're going to talk about her special interest. Or the place, that you can talk about that at school but the time you can talk about that at school is, these times.

Now, if you really need to try and reduce it, then you're going to have to use social stories or comic strip conversations to help them understand other people's perspective, and why it's necessary that they not engage in their special interest at school or why they can't talk about it. For example, if you've got a girl, who, her topic is menstruation and she's a middle-school girl, that is going to be really problematic at school. Or another example, a kid whose particular interest is fire, well, you're really limited with how much you can do with fire at school. So it doesn't always work to manage their special interest as a latent talent, but that's tough. But then you're going to really have to rely on your social communication strategies to build their understanding of why they have to limit that, but also work on replacing that special interest with something else. And that's where you might need a psychologist to help you, or a mental health professional to help you with your behavioural strategies for making that transition. You're not going to be able to do it all at once, it's going to be a process.

Now about planning and coping with organisational difficulties. This is a thing, this is a challenge that keeps a lot of these kids out of the gifted program, they can't handle the advanced work because they don't have the capacity to do the planning and organisation that it requires. They can't succeed in some gifted programs, because the

level of expectation is so high. So we want them to be able to participate, but we have to find ways to accommodate that and to help them build some of those skills. You cannot underestimate the importance of routine. The more that you can routinise, the better off they'll be, because they've got good memories and they'll learn the routine. Have routines for everything. Parents get really good at this because it is survival. These kids have great difficulty managing transitions, so you need a routine for transitions, just general transitions. For example, you could have the routine be, when there's going to be a change, that's when you get your buddy, the person in class who is your buddy who helps you through transition time, and that's your cue. The more routine the better.

We emphasise visual, visual, visual. Not all these kids are really strong visual thinkers, but most of them seem to be. Have you read Temple Grandin's *Thinking in Pictures*? That can help you understand how differently they think. And this is why visual support is really helpful. So, any time you've got instructions, don't rely on auditory information, they're going to have trouble with auditory information. Anything that you're going to say, if possible, give them some kind of visual support for. Put it in writing, instructions, reminders about things, directions for stuff.

Limit the material that they have to organise, don't let them come to school with a hundred pens. Or that they don't get to have all these books that they carry around. Limit the number of things that they can actually have and organise the materials, perhaps into containers, ziplock bags that they carry things in, or segment the materials, little compartments for stuff, and be very strict about what goes where.

Organisational maps can be miraculous. I learned this from a parent. I was doing a case consultation in Colorado with a third grade boy, who had ADHD, ASD, and he was gifted. Not an unusual combination, quite common. Now these kids normally have more than one thing going on. And we were meeting with his fourth grade teacher and just talking about how to manage some of his challenging behaviours. And the mum mentioned, when we were talking about visual supports, that's something she had learned to do at home because when he was very small, when parents have these kids and they're very small they kind of wall-paper their homes with visual, with photographs of things. They take digital photographs. One of the ways that you teach a small child with autism, perhaps how to use the toilet, is you just paper the wall the visual steps, you take pictures of them doing the different things so they can sequence it. You can't just tell them and have them do it. It doesn't work that way necessarily. So she said that she had kind of forgotten about that when she was trying to teach him to clean up his room. Because he has ADHD in addition to the ASD she would get very frustrated sometimes about how messy his room was. And she could say clean up your room but he *couldn't* clean up his room, it would take him forever to clean up his room. And then she remembered about the visual side, so what she did was, she cleaned up his room, she took a picture of it and then when his room got messy she gave him a picture of it and said, "Make your room look like this," and he could do it. He could do it. And sometimes if they didn't have enough time, or if she didn't want the whole thing, she would just say, "Make your dresser look like the dresser in this picture," or "make your bed, match the bed in this picture."

Well the teacher went, “Oh my gosh, his desk is a mess. We could straighten up his desk, put everything where it is supposed to be, take a photograph of it and then put it as a map on the inside of his desk or the inside of a locker.” And then, all they have to do is match the inside of their desk or the locker to the photograph, “Make it look like this.”

That may be the best thing you’ve learned all day today, if you’re not familiar with that strategy already. I mean I’m very surprised, I’ve seen videotapes of people working with kids who are quite severe with their behaviours and they’re doing the talking, they’re not talking a lot but they just keep poaching, auditorily and the kid’s screaming, a young child, eight, seven years old. The kid’s throwing a major tantrum, and all of a sudden the person communicating switches off talking and begins to lay out pictures and the kid just calms. Because auditorily, he can’t do it, but visually, he understands. And calms right down. It’s near miraculous.

Now I’m not promising that’s going to work all the time but I’m sharing it because it was like, “Oh my gosh!” It’s like the magic solution.

You can buy software, it doesn’t necessarily have to be a picture. Many bright kids, if you can just spell it out, write it out sometimes, so using Velcro strips for their sequencing in their day. Having a schedule on little cards or little pieces of paper, then just lay it out for them and it can just be rearranged if their schedule’s not the same every day. They also need help with visual clarity, they can’t really pick up the details on what to attend to. So you might give assignments and they’ll read it, but they don’t know what’s important. So, you need to highlight, colour or underline or have someone else do that, in order to clarify visually what is most important for them.

Here’s just a few strategies to help with changes and transitions. These kids often have meltdowns in transitions. “I have a substitute teacher today, oh my gosh!” Meltdown, teacher’s not here. Or we’ve got a special assembly so the schedule has changed, it’s major. Anxiety goes way up for them. So you have to plan ahead. What is the plan? You know that you’re going to have some, some days, so you’ve got to have a plan. What is the plan when you’re going to have a substitute teacher? It might work just enough to have a buddy for a substitute, but it might not. So giving pre-warning signals can help with transitions. Some kids have transition trouble every hour in the day and when you think about it, I’ve worked with very bright kids, highly gifted kids, who have so much trouble with sequencing that every day at school is like the first day at school. They are relearning their way around the building every day. You know how stressful that is? Not knowing where you’re supposed to go next? Because you can’t figure it out. So they either need a buddy, who escorts them, and that’s their strategy. Or a very clear map that they’ve got on the front of their notebook, and a clear schedule that says, “this is where you go today”, that they can rely on, and then they won’t be so anxious. The Velcro visual storyboards for younger kids can be very helpful for keeping them calm and helping them follow through.

Now, individualised schedules for these children, having something, parents can make these for them. I’ve seen a nifty little device, where they have a keychain and they’ve got little cards with all the things the child does in a week and the parent just loads those little cards onto the keychain or that bracelet for what the day’s schedule

was. So the child, if they are anxious, they can just check what they do next. And it's just right there in their pocket. Of course when they get older they can have their own iPhone with their schedules for the year loaded onto it. But then they can spend all their time on their gadgets. There's lots of ways now, with technology.

Now, just because they have an individualised schedule doesn't mean they'll use it. But then you're going to have to work out how you're going to cue them. So it can feel really overwhelming to a teacher, that's why it takes a team approach and collaborative help. They are very slow information processors, particularly auditory information. This is an issue in the gifted classroom because the other kids are going, *snap, snap, snap*, and they want to keep up, they want to be part of that, but they can't. So they can get really frustrated in a gifted classroom. And other kids might get frustrated with them.

On the one hand they conceptualise very well, but they don't process information very quickly. So whether or not they are a good fit for the gifted program will depend.

You need to allow them time to respond. You're going to have to give them more time for processing. And it is recommended that you don't have them multitask. Now they are going to want to multitask, because the other kids are multitasking, and they want to do what the other kids are doing, but they're not good at it. And it confuses them. Stress quality over quantity. And when possible, reduce the load. Stress the quality. They are going to compare themselves to the other gifted kids and want to perform in the same way, but it is not realistic. And make written notes available, because if you expect them to take their notes they are going to be taking hours and hours and hours and we don't want them to get bogged down with that.

The thing is you don't want them to have to listen to you and copy off the board at the same time. They can't do more than one thing. They don't do more than one thing well at all. So just one thing at a time. So if you really want them to listen, then give them a copy of whatever is on the board so they are not writing it down. So reading for comprehension and taking notes at the same time, not so easy to do.

Many of these kids, not all, but many of them have fine motor difficulties, so be flexible with what their preferred writing style is. Of course use computers whenever possible, provide copies of your notes and outlines, using the graph paper for maths. Maximise assistive technology and allow them to do some writing in the area of their special interest to accommodate that.

Now, developing social competence. They are not very reciprocal, they can be very easily overstimulated in a group situation, I've watched this with my friend and with other kids over and over and over again. She does just fine when it's her and I one on one, but as soon as you add two or more people to the group, she shuts down. She's on her gadgets, because she can't track.

Now one of the issues in her life is that she wants to go to church. Well, church is such a challenge. She wants to go to church, she has a faith, there's a certain spirituality that she wants to develop, she wants to be a part of that, but sermons are delivered auditorily, and she has a very tough time staying engaged. So, she tries to work on her

phone at the same time. How does that go over? This is in Singapore. We're in conservative church in Singapore and she's on her little gadgets trying to keep herself engaged so she can sit there and other people take offence, because she's not listening. But she can't process. Then she gets pressure to participate in Young Adult Sunday School, but if you go to Young Adult Sunday School, what's the format? Singing or dancing, group interaction, discussion. She can't do group interaction. She can't do group discussion. She's immediately overstimulated. So she wants to be there but she can't be there because they don't know how to accommodate her. And the other day, it moved my heart, she said, "You know, I've really been thinking about not coming to church, because I don't have any friends here." You know, she really wants to have friends, and they want to include her so they say, "Well come to Sunday School." Yeah but she can't do Sunday School the way you do Sunday School, there's no accommodation for her.

A cool thing that's happening though in Singapore, maybe it's happening in your neighbourhood too, the Anglican church has decided, and it's going to open pretty soon, they are having an Anglican church for people with ASD. Isn't that cool? I can't wait to go. Very interesting. They're going to have services and accommodation, services that are specifically designed for the kinds of needs and behaviours of people with ASD. I can't wait to go and see what they've done with it. I think it is going to be a really interesting experience.

Now, traditional methods of teaching social competence are not going to work. Kids with ADHD, the way you teach them social skills are very different, you've got to do it visually. You can't do it auditorily. You can't just coach them, they're not going to be able to generalise if you've coached them auditorily, they can't generalise from one situation to another, they can't execute it. They're not necessarily going to understand it, they may misunderstand it.

You've got to use visual methods. One thing that helps is to develop a special signal for focussing, when they need to focus, help them focus on discrete, highly specific behaviours. Make it really concrete for them. I'll give you a couple of examples. Preparing social scripts, many kids who get successful, they've learned a lot of social scripts, they've memorised. This is what happens in groups, in group training, social skills training for kids with ASD. They learn social scripts for different kinds of situations. And they have to plan ahead for new situations, what are you going to do?

Now I have a wild idea for something that I want to try and develop. I have this wild idea for a social communication intervention that I think I could develop for cell phones that kids with ASD could use in real time in social situations to help them improve their communication. And I have applied for a Gates Challenge Grant to try and develop it. Now, if you know the Gates Challenge Grant, that's a long shot that I'll get it. But, if I get it, I know I can develop it, whether or not I can get the kids to use it, that's always the issue. You can come up with these nifty ideas, but, will they use it? But I figure I can radically transform the social experience of kids with ASD if I can develop this cell phone device that will actually coach them. There's the chance that social scripts won't work and that's why I think they need to have the cell phone intervention.

I do know that some parents, I have been told that they do text messaging with their child. And so then when the child is in a social situation that they're really anxious about or it's a requirement, or they want to engage, they will text. You know teenagers, the social etiquette rules are different for younger people than they are for us. If we were out together and we were visiting and I was on my phone texting, you would be offended. But with young people, it is perfectly acceptable to be texting other people while you're in a group situation and engaging in the conversation. So what that means is that a kid with ASD could, if they were willing to, that's always the key is getting them to see if they're willing, they could text home and say, "I said this, and he said this" or "I'm having difficulty and I can't understand" and you could text back with, "Say this." I know a mum who does it, she texts live to her daughter. And the wonderful thing is then she gets practice in real time over her phone. And it's visual, and she can deliver it. So it's not always going to be perfect, but that's what we need to work on.

This is the thing, one of the reasons I'm pretty passionate about the cell phone intervention idea is because a lot of this, it's better than nothing, but it's not really great. I went to a training workshop a few weeks ago, in which this very skilled and very experienced speech therapist did a two-day workshop, teaching us how to work with kids on their social competence training and she showed us all these wonderful videos of kids she had worked with from when they were eight until they were seventeen, and she saw them twice a week for years and it was wonderful to see but I thought, "Hello, twice a week for years and they're still not very functional!" Yeah she made progress, but it's not enough. I think we have to mobilise their peer group. I think we have to harness the peer group because they want to be engaged. And I think we need to teach the village what to do, rather than relying on the professionals. Twice a week isn't going to cut it, even if you've got the money, and most people don't have the money to do that.

So preparing the social scripts, planning ahead for when you don't know, rehearsal with direction instruction, and using social stories. An example for coaching: my friend, when I first met her, of course she was delighted to have somebody, I mean, I know how to talk to her. And as soon as I met her I realised she was autistic, but most people don't know that and they just think she's really weird, and boy is she annoying and what is with that, why did she do that? So, she would call me. She would call my husband and I a lot. And so the first thing we had to work on was how many times she may call. And it took us a few weeks. But the thing that took us such a long time was she knew how to call and she was very comfortable talking on the phone, which was a good skill to have, not all these kids do, but she didn't know how to get off the phone. She could not get off the phone. So she got on. So we were really challenged for a while. Initially I had to hang up on her. I would make my efforts, I'll call her Ellen, "Ellen, it's been great talking to you, I need to run now because I've got to make dinner" and she would just totally ignore me and keep right on going. No appropriate boundaries, she didn't get it. And couldn't take the cue, didn't read the cue about that. "Ellen, I'm sorry, I'm going to hang up now, because we're done talking." And I was really careful about my voice tone, because over the phone she can't see me, which maybe helped or maybe didn't help, I don't know. So for many weeks, I'm talking weeks, not days, every day, multiple times a day, I'm hanging up on her. So I knew that the best way to work with her was visually, but I don't have the time and she

doesn't have the time to get together to work on it, so we had to stick with the phone. So I just said, my husband and I said, here's our plan, we're going to teach her the cues. It took us six months, every day, on the phone, to teach her how to get off the phone. And this is what we did, I said, "Ellen, when I say that I have to go now, that's you're cue to say, 'Okay, it's been nice talking to you, talk to you tomorrow'." I gave her the script, "Okay, it's been nice talking to you, talk to you tomorrow. Bye." She had to say the same thing over and over again. It went from, I would have to do that maybe, I would still have to hang up on her, I would give her the cue and she wouldn't get it, and I would say, "Okay, now I'm going to hang up, because it's time to go." Then we were able to work on, she would change the subject and I would say, "No, Ellen, remember that's your cue. Remember, when I say, 'It's been nice talking to you, it's time to go', then you say, 'Okay, it's been nice talking to you, talk to you tomorrow.'" So then she would parrot me, and then we would hang up. I would say hang up, and I would hang up and she would hang up. She's seventeen at this time that we're working on this, and she's very bright. And we went from maybe having to do that five times in a conversation to just having to cue her two or three times in a conversation, to with one cue she could do it, and then today, a year later, she can get off the phone without any cue from me. But can she generalise to other people? I don't know. I think she can with my husband, but I don't know if she can beyond us. I don't know if she has anybody to call beyond us.

But she did get a boyfriend recently and so I've been coaching her boyfriend. She's got a great boyfriend. So I've been coaching him on how to help manage his own frustration and what to do when she gets obsessive or perseverative about things. And we can all see the small humour a little bit. I can say, "Oh Ellen, you're perseverating on that topic and I'm ready to move on to something else," and she can giggle and say, "Okay, how are your parents?" She's got very limited options about what she can do, but you know, if I can work with her visually, if I had more time, maybe I could do that.

Circle of friends and this idea of buddies, you can't just have one buddy though to build social competence. You've got to have a group, and there's some literature about this. And some structure. So you have a circle of friends, it's actually the name of the technique and you designate, you get volunteers of kids who are willing to learn, who are interested in autism and are willing to make a circle of friends around this person, and take responsibility for different aspects. So that everybody's not on the same day. They might rotate by the week, they might rotate by the day, they might rotate by the hour. So these kids, they meet with either the teacher or the school counsellor about every two weeks and talk — it's going to equip them with the strategies about how to handle, to problem solve, the things that come up.

But imagine, then the child's got somebody every hour of the day who knows what to say and how to cue them, you just structure that for them. And monitor. Personally I think that's the way we need to go. I think it will take forever if we wait on professionals. I think we need to equip the peer group to intervene. That's my view.

Okay, let's work on social stories. Social stories are an intervention that they've done quite a bit of research about. Now the research is largely small case studies of small numbers, but still it has been shown to be effective in helping kids develop social

competence. And it is one of the only strategies we have, so I want to teach you how to do it. Social stories are little tiny narratives, usually anywhere from six to eight lines, that describe and explain what's going on in a social interaction. So they're like little teaching moments. And you write them out. Or you can do them visually. Usually with a gifted kid you're going to write them out because they can read very well.

They include four types of sentences: descriptive, directive, perspective and control. Now I'm going to go through those. The first sentence in the social story gives you information about the settings, the people and the event. It just tells you what's happening.

"Sometimes, I don't know what to do." That's a descriptive sentence that explains a social situation that can happen. "Sometimes at school I don't know what to do," or "Sometimes at school other kids laugh at me," or "On Tuesdays I eat my lunch in the cafeteria." You know, whatever the situation is, the opening line describes it.

The second sentence is directive. It tells the child what he or she is to do in that situation. What they're supposed to do.

The third sentence provides perspective. This is where we're working on developing a little bit of perspective on how other people see a situation and why it's important to be able to adapt. It describes the feelings and reactions of other people and it's kept very simple. It explains their reactions, why they do what they do. And literally, many kids with ASD, they memorise lots of social stories, and they work them over and over and over again to build their social competence.

The last sentence is about control. It gives the child a way to remember what to do or say in these situations. It is kind of an anchor if you think about it that way.

So here are some examples: I had a middle-school girl, bad breath. "My breath smells bad when I don't brush my teeth." That's the descriptive. "People at school don't like to smell bad breath." That's the perspective. "I can brush my teeth every morning. Toothpaste stops the bad smell. I can brush my teeth with toothpaste." There's the directive for her. Notice the last sentence, the control. "I will try to remember to brush my teeth every morning." It's recommended that you not use an absolute for the control statement because it can throw them off. If you say, "I will remember..." some of them will throw out the social story because it strikes them as absolute, but with "will try" they'll engage. So the wording is important. It's recommended that you say, "I will try to..."

Here's another example: "Sometimes at school I don't know what to do." This might be your first social story that you do, because it is really important. "That's okay. I will take two deep breaths and tell myself it's okay. I can ask Mrs Neihart to help me. I can say, 'I don't understand what to do.' Mrs Neihart will tell me and I will listen. I will work on asking for help when I don't know what to do." Very simple social script. You can make it even simpler if you want.

Now this was also a real case with a middle-schooler who wanted to take her clothes off, and did. "Sometimes I feel hot and uncomfortable indoors. It's not okay to take my

clothes off.” Especially when you’re an early adolescent female in a middle-school, it’s a bad idea. “I can ask to open a window or go outside. I will try to open a window or go outside when I feel too hot.”

Learning to write social stories is a very important basic skill. You need to have a strategy for working on social competence. I would use social stories with everybody, even adults I would write social stories with. The research suggests that it is useful.

You will have some kids who don’t want to do the social stories. But I will sometimes explore that because there might be something we can do about the situation and how it’s delivered, and that’s why they’re resistive. Some kids will not do the social story, but it works for a lot of kids and a lot of different ages.

Before you go after behaviours find out if there is a purpose to the behaviour.

One of the mums back here brought up a good point. Two parents who say that their kids are pretty resistive to this and they feel either patronised, they don’t like it, they get upset about this. It is true that some kids are not very responsive to social stories, but before I give up on it I would find out what, it’s the parent who’s doing it. So sometimes it may not be the social stories so much as the fact that it is the parent who is working the social story with the kids. And understandably they get tired of being coached so much by the parents. In my relationship with this kid with ASD, there’s things I can do with her, I can coach her on, that her mum could but she would never tolerate it from her mother. But she will tolerate it very well from me. So I would encourage you, that if you’ve got to be, you know, something that needs a social story, to see if you can find a peer who could work with the social story or someone that they like, or a school staff person, and don’t give up on the social story just because they’re resistive if you’re the parent or the teacher. You know, just like other kids, they’ll hear things from peers or someone they like that they won’t hear from others.

You’re not going to write social stories for the child. With a gifted kid you’re going to be writing this with them most of the time. They can learn to write their own social stories getting input.

The question to ask in terms of placement with these kids is that not all these kids belong in the gifted classroom. Just because you’re gifted doesn’t necessarily mean that you belong in the gifted classroom. There’s reasons sometimes why these kids should not be in the gifted classroom. But ask what would it take for them to be successful in this environment. If they’re going to be in the regular classroom, what would it take to provide an appropriate level of challenge?

Revised Profiles of the Gifted & Talented

| Feelings & Attitudes Type | Behaviors | Needs | Adult/Peer Perceptions | Identification | Home Support | School Support |
|---|--|---|--|--|--|---|
| The Successful Complacent Dependent Good academic self-concept Fear of failure Extrinsic motivation Self-critical Works for the grade Unsure about the future Eager for approval Entity view of intelligence | Achieves Seeks teacher approval Avoids risks Doesn't go beyond the syllabus Accepts & conforms Chooses safe activities Gets good grades Becomes a consumer of knowledge | To be challenged To see deficiencies To take risks Assertiveness skills Creativity development Incremental view of intelligence Self knowledge Independent learning skills | Liked by teachers Admired by peers Generally liked & accepted by parents Overestimate their abilities Believe they will succeed on their own | Use many multiple criteria Grades Standardized test scores Individual IQ tests Teacher nominations Parent nominations Peer nominations | Parents need to let go Independence Freedom to make choices Risk-taking experiences Allow child to be distressed Affirm child's ability to cope with challenges | Subject & grade acceleration Needs more than AP, IB & Honors Time for personal curriculum Activities that push out of comfort zone Development of independent learning skills In-Depth Studies Mentorships Cognitive Coaching Time with Intellectual Peers |
| The Creative Highly creative Bored & frustrated Fluctuating self-esteem Impatient & defensive Heightened sensitivity Uncertain about social roles More psychologically vulnerable Strong motivation to follow inner convictions Wants to right wrongs High tolerance for ambiguity High Energy | Expresses impulses Challenges teacher Questions rules, policies Is honest and direct Emotionally labile May have poor self-control Creative expression Perseveres in areas of interest (passions) Stands up for convictions May be in conflict with peers | To be connected with others To learn tact, flexibility, self awareness and self control Support for creativity Contractual systems Less pressure to conform Interpersonal skills to affirm others Strategies to cope with potential psychological vulnerabilities | Not liked by teachers Viewed as rebellious Engaged in power struggle Creative Discipline problems Peers see them as entertaining Want to change them Don't view them as gifted Underestimate their success Want them to conform | Ask: In what ways is this child creative? Use domain specific, objective measures Focus on creative potential rather than achievement | Respect for their goals Tolerate higher levels of deviance Allow them to pursue interests (passions) Model appropriate behavior Family projects Communicate confidence in their abilities Affirm their strengths Recognize psychological vulnerability & intervene when necessary | Tolerance Reward new thinking Placement with appropriate teachers Direct & clear communication Give permission for feelings Domain specific training Allow nonconformity Mentorships Direct instruction in interpersonal skills Coach for deliberate practice |
| The Underground Desire to belong socially Feel Unsure & Pressured Conflicted, Guilty & Insecure Unsure of their right to their emotions Diminished sense of self Ambivalent about achievement Internalize & personalize societal ambiguities & conflicts View some achievement behaviors as betrayal of their social group | Devalue, discount or deny talent Drops out of GT & advanced classes Rejects challenges Moves from one peer group to the next Not connected to the teacher or the class Unsure of direction | Freedom to make choices Conflicts to be made explicit Learn to code switch Gifted peer group network Support for abilities Role models who cross cultures Self understanding & acceptance An audience to listen to what they have to say (to be heard) | Viewed as leaders or unrecognized Seen as average & successful Perceived to be compliant Seen as quiet/shy Seen as unwilling to risk Viewed as resistant | Interviews Parent nominations Teacher nominations Be cautious with peer nominations Demonstrated performance Measures of creative potential Nonverbal measures of intelligence | Cultural Brokering Normalize their dissonance College & career planning Provide gifted role models Model lifelong learning Give freedom to make choices Normalize the experience Don't compare with siblings Provide cultural brokering Build multicultural appreciation | Frame the concepts as societal phenomena Welcoming learning environments Provide role models Help develop support groups Open discussions about class, racism, sexism Cultural Brokering Direct instruction of social skills Teach the hidden curriculum Provide college planning Discuss costs of success |

| Type | Feelings & Attitudes | Behaviors | Needs | Adult/Peer Perceptions | Identification | Home Support | School Support |
|--------------------|--|---|--|--|--|--|--|
| The At-Risk | Resentful & Angry Depressed Reckless & Manipulative Poor self-concept Defensive Unrealistic expectations Unaccepted Resistive to authority Not motivated for teacher driven rewards A subgroup is antisocial | Creates crises and causes disruptions Thrill seeking Will work for the relationship Intermittent attendance Pursues outside interests Low academic achievement May be self-isolating Often creative Criticizes self & others Produces inconsistent work | Safety and structure An "alternative" environment An Individualized program Confrontation and accountability Alternatives Professional Counseling Direction and short term goals May be self-isolating | Adults may be angry with them Peers are judgmental Seen as troubled or irresponsible Seen as rebellious May be afraid of them May be afraid for them Adults feel powerless to help them | Individual IQ testing Achievement subtests Interviews Auditions Nonverbal measures of intelligence Parent nominations Teacher nominations | Seek counseling for family Avoid power struggles Involve in extracurricular activities Assess for dangerous behavior Keep dialogue open Hold accountable Minimize punishments Communicate confidence in ability to overcome obstacles Preserve relationships | Don't lower expectations Diagnostic testing Non-traditional study skills In-depth Studies & Mentorships G.E.D. Academic coaching Home visits Promote resilience Discuss secondary options Aggressive advocacy |
| | Learned helplessness Intense frustration & anger Mood disorders Prono to discouragement Work to hang on Poor academic self-concept Don't see themselves as successful Poor academic self concept Don't know where to belong | Makes connections easily Demonstrates inconsistent work Seems average or below More similar to younger students in some aspects of social/emotional functioning May be disruptive or off-task Are good problem solvers Behavior problems Thinks conceptually Enjoys novelty & complexity Is disorganized Slow in information processing May not be able to cope with gifted peer group | Emphasis on strengths Coping strategies Skill development Monitoring for additional disorders - especially ADHD To learn to persevere Environment that develops strengths To Learn to self-advocate | Requires too many modifications because of accommodation Seen as "weird" Viewed as helpless Seen as not belonging in GT Perceived as requiring a great deal of structure Seen only for disability | Measure of current classroom functioning Achievement test scores Curriculum based assessment Examine performance over time Look for pattern of declining performance paired with evidence of superior ability Do not rely on IQ scatter analysis or test discrepancy analysis | Focus on strengths while accommodating disability Develop will to succeed Recognize & affirm gifted abilities Challenge in strength areas Provide risk-taking opportunities Assume college is a possibility Advocate at school Family involvement Nurture self-control Teach how to set & reach realistic goals | Challenging in area of strength is first priority Acceleration in area of strengths Accommodations for disability Ask, "what will it take for this child to succeed here?" Direct instruction in self-regulation strategies Give time to be with GT peers Teach self-advocacy Teach SMART goal setting |
| Autonomous Learner | Self-confident Self-accepting Hold incremental view of ability Optimistic Intrinsically motivated Ambitious & excited May not view academics as one of their highest priorities Willing to fail and learn from it Shows tolerance and respect for others | Appropriate social skills Works independently Set SMART goals Seek challenge Strongly self directed Follows strong areas of passion Good self-regulators Stands up for convictions Resilient A producer of knowledge Possesses understanding & acceptance of self | More support not less Advocacy for new directions & increasing independence Feedback about strengths & possibilities Facilitation of continuing growth Support for risk-taking On-going, facilitative relationships Become more adept at managing themselves A support team | Admired & Accepted Seen as capable & responsible by parents Positive influences Successful in diverse environments Psychologically healthy Positive peer relationships | Demonstrated performance Products Nominations Portfolios Interviews Standardized Test scores Awards | Advocate for child at school & in the community Provide opportunities related to passion areas Allow friends of all ages Remove time & space restrictions for learning Help them build a support team Include in parent's passions Include in family decision making Listen Stay out of their way | Allow development of long-term, integrated plan of study Remove time & space restrictions Develop multiple, related in-depth studies; including mentorships Wide variety of accelerated options Mentors & cultural brokers Waive traditional school policies & regulations Stay out of their way Help them cope with psychological costs of success |

From GLD to Gold

Frances Hill
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Recognising and Honouring the Needs of GLD Students

Imagine, if you will, the fate of being ground between two giant opposing forces against which you have no power. Such is the condition of the GLD student.

Students who are gifted but who suffer a specific learning disability are commonly referred to as double labelled or students of dual exceptionality. I prefer the term GLD [Gifted and experiencing Learning Difficulties] because it puts emphasis on the giftedness of these students who form a significant subset of the gifted community. GLD students present a challenge to their teachers and parents. Their test performance is variable despite flashes of high intelligence. They may appear to be unmotivated; their motivation is actually very high but they experience a destructive degree of frustration because their specific learning difficulty imprisons their intellectual functioning. They present as underachievers who puzzle their teachers by displaying excellent verbal ability, which does not transfer to productive outcomes.

I refer to the GLD condition but it is not one condition as such; rather it is a range of conditions in which the giftedness of the student is overshadowed by a specific learning difficulty.

Characteristically there is no overt learning difficulty, which could account for the reluctance because the above-average intelligence of the student masks the most severe effects of the learning disability. The student tends to perform in the average range with the exception of advanced verbal facility and highly developed thinking skills. A strong creative streak is usually present.

GLD [Gifted and experiencing Learning Difficulties]

There is a tendency for the misinformed to label these students as disengaged or unmotivated. There may be a pattern of acting out in school or they may tend, initially, to withdraw into themselves, causing little disruption at school but displaying patterns of negative behaviour at home or of illness which worries their parents. The students become increasingly anxious as the discrepancy between their strengths and weaknesses becomes wider. They may become moody or withdrawn in school, behaviours which result in further social dysfunction and alienation from their peers.

The keen sensitivity displayed by these students arises from a self-critical function which tends to be perfectionist and which damages self esteem. The combination of

high intelligence and a learning block produces a great deal of frustration and suffering for these students and their families.

When the precocious perceptiveness and sensitivity of a gifted student coexists with a debilitating learning difficulty, the stage is set for significant emotional and social dysfunction because the GLD student adopts a range of maladaptive perceptions and behaviours in the struggle against this perplexing condition. The social and emotional needs of GLD students must be met if any real learning is to take place.

Emotional and social consequence of the undiagnosed GLD condition

There is a significant body of research which attests to the emotional needs of gifted students who experience significant learning disability. This subset of the gifted community is at high risk of developing emotional dysfunction resulting from the conflict and frustration which they experience. The presence of a learning block, in a student of high intellectual function, characterised by a tendency to perfectionism, creates considerable suffering.

It is these students who are vulnerable to depression and substance abuse because their critical faculty undermines their self-perception. The restless energy of their minds cannot find expression in productive outcomes because the unidentified learning difficulty frustrates each attempt.

Emotional Concerns

GLD students have a distorted perception of self because they are constantly receiving conflicting internal messages.

The undiagnosed GLD condition is extremely painful. Normally giftedness is considered to be an asset but in the GLD student it contributes to the pain. The student is crushed between the limiting effects of the learning disability and the drive for mastery which the giftedness promotes. A bright questing intellect which cannot find expression in high performance may well turn in upon itself with destructive consequences.

Families, too, suffer along with the student. There is a seemingly endless cycle of hope and despair as the student exhibits flashes of brilliance alternating with incredibly frustrating limitations. A pattern of uneven emotional maturity compounds the problem. Confusion reigns in the afflicted student, in their parents and in their teachers.

Parents may blame themselves for the unusual behaviours which GLD students exhibit or they may be blamed by others as having poor parenting skills. It is not unusual for school conforming GLD students to vent their frustrations in extreme behaviours at home.

Siblings may well feel neglected as parents struggle to assist this child who perplexes them. They may well be extremely resentful of the time and attention which the GLD

condition demands. Sibling relationships are even more fraught than usual, the outbursts more extreme since the already pressured GLD student does not respond well to further pressure.

The harshest critic of all is the inner critic which the GLD student is forced to listen to at every moment. Such a condition cannot be endured for long. The student often sinks into a pattern of hopelessness alternating with outbursts of anger and resentment.

The introverted GLD student is most often the victim of a condition known as Learned Helplessness. When this happens, all learning is compromised and Dysphoria, the inability to access any joy, sets in. The stage is now set for a depressive event.

Their giftedness strives for mastery, engages in endless inquiry and produces perfectionism.

The learning block delays skills development limits the acquisition of a wide knowledge base and frustrates every attempt to achieve high performance.

GLD students invariably perceive themselves as damaged or stupid. This self-perception must be changed. It falls to the teacher as the significant other to recognise the giftedness of the student and to convince the student that he/she is talented and that the giftedness is not a mirage but is very real and can be used effectively to offset the worst effects of the learning difficulty which has been diagnosed. In short, what the GLD student needs is hope which is based on observable and verifiable evidence. The 'Celebrating the Gift' component of the GLD Intervention program will provide such evidence.

Any GLD student who has graduated from junior school without an accurate diagnosis of the GLD condition will invariably be in the firm grip of Learned Helplessness which sucks the energy, enthusiasm and hope of its victims. Learned Helplessness deals in absolutes; every set-back is a catastrophe, is permanent, and is the result of personal defect. Learned Helplessness (LH) teaches a GLD student to adopt the victim role, that each previous failure is firm evidence of a pervasive worthlessness which cannot be remedied.

The old adage success builds upon success has never been truer. GLD students must achieve significant success which is valid in the eyes of the student, if the grasp of LH is to be loosened. This must happen up front — don't wait for the intervention strategies designed to address the learning difficulty kick in. Engender success now. An astute teacher can devise leadership opportunities for GLD students whose giftedness will create windows of opportunity.

Dual exceptionality leads to a morass of confused thoughts and perceptions. If it is challenging for an educational professional to diagnose the condition, imagine the quality and nature of the sufferer's perceptions.

GLD students need to learn how to learn. They need to be partners in their own recovery. They need to learn strategies to cope with the effects which their particular learning difficulty brings.

They need to learn those strategies which will eradicate, minimise or mitigate the effects of their learning disability. They need to let go of old habits and perceptions which have become maladaptive.

They need to learn adaptations which will prevent the learning difficulty from blocking them. They need to learn to pace themselves and to recover their focus after a set back. They also need to learn to handle stress.

They will also need assistance in dealing with the organisation involved in a learning task, coping with the time frame and accessing appropriate learning strategies and resources.

Social Concerns

GLD students are often very lonely. They fit in neither with the special needs community nor do they feel that they fit in with the regular gifted. Their giftedness drives them to seek the company of older students or gifted peers; their poor academic performance embarrasses them and causes them to withdraw.

Alienation from peers compounds the GLD student's sense of isolation, as does their acute sensitivity to the expectation of parents and teachers who perceive the giftedness and cannot account for the failure in performance. It is the fate of many GLD students to be labelled as 'lazy' or 'unmotivated' when, in fact, they are highly motivated to succeed but cannot do so. This kind of harsh labelling further alienates GLD students from their peers.

As with the regular gifted students, it is vital to find a like-minded peer but where can such a peer be located? It is my experience that the regular gifted community does accept GLD students. It is the GLD students themselves who opt out of such a community because of their acute sensitivity and their perception that they are inferior.

GLD students are welcomed, acknowledged and supported by their gifted peers

Nevertheless they do belong with their gifted peers and can, with the support of a perceptive teacher, access those differentiated programs which celebrate excellence of creativity, originality of thought and advanced problem solving.

GLD students are welcomed, acknowledged and supported by their gifted peers who know what it feels like to be different. In such a community they come to recognise their giftedness and are able to contribute to the ideas pool of the group. The only note of caution would relate to interaction with gifted underachievers who are in the recovery stage. Their caustic wit is too sharp for the sensibilities of the fragile GLD.

GLD students' social antennae are usually sensitive to perceiving possible slights. They tend to be very dismissive of compliments, believing them to be the result of a mistaken perception. This mistaken perception can be changed by actively teaching GLD students to develop a realistic sense of self and by encouraging them to take their place in normal social interaction.

The way forward: The GLD Intervention Program

Provision of an exceptionally differentiated program which incorporates these elements is required to free GLD students from the limitations of their condition. Such a program must also address the worst effects of the specific learning difficulty whilst celebrating the giftedness of the student.

Challenges for Teachers

Teaching students of dual exceptionality is a demanding task. Both the learning disability and the giftedness must be addressed simultaneously yet each presents different characteristics and demands opposing differentiation as exemplified below.

| Learning Blocks | Giftedness |
|-------------------------|---------------------------|
| Holds Back | Drives |
| Needs structure | Needs open ended inquiry |
| Needs clarity | Needs complexity |
| Limits performance | Seeks mastery |
| Needs support person | Seeks autonomy |
| Creates confusion | Creates intensity |
| Creates skills deficits | Promotes conceptual leaps |
| Limits horizons | Strives for perfection |

Identifying typical GLD behaviours

GLD Girls

As with the regular gifted and the underachieving females, GLD girls' priority is social acceptance. This coupled with their more sophisticated socialisation skills, allows them to operate within the early/junior classroom setting. As they progress through school, they are more likely to come to a teacher's attention but by then they may have adopted maladaptive practices which are limiting and are in danger of becoming permanent. GLD girls tend to take the imagined safety of the withdrawal route in reaction to their condition because:

- They are more sensitive to public perceptions.
- They display a greater need for social acceptance .
- Their social and coping skills are well developed, even in the presence of a learning difficulty.

- Their brain organisation favours a more adaptive strategy which allows them to broaden their performance base and perform at average or slightly above average level particularly in the early years of schooling.
- Parental perception in terms of expectation may be less demanding and therefore educational performance less important.

They are less likely to act out in a public setting, but may do so in the relative safety of their own home, creating difficulties for siblings and for parents. They are more difficult to identify but their need is no less pressing. They may sublimate their drive for mastery and their innate leadership skills by indulging excessively in 'social behaviours'.

GLD Boys

Whether GLD boys withdraw or act out depends on their personality and degree of extroversion. The more likely scenario is that they will act out by becoming the classroom clown or the classroom terror. The more obvious signs of their learning difficulty may well be picked up as junior teachers are on the alert for linguistic developmental delays in young boys. Most of Reading Recovery students are male. The underlying Specific Learning Difficulty which causes the developmental delay may not be accurately diagnosed and so may continue to cause a range of confusing and maladaptive behaviours.

What is likely to happen is that they acquire a label and their giftedness is buried beneath the raft of acting-out behaviours which they adopt in response to a dual exceptionality which they cannot comprehend but which continues to drive them.

Common GLD male behaviours include:

- Playing classroom clown.
- Acting aggressively.
- Displaying poor impulse control.
- Constantly indulging in disruptive classroom behaviours.
- Displaying very immature behaviours.
- Ceaseless energy alternating with bouts of fatigue.

Given the nature of their behaviours, it is little wonder that their name does not occur to teachers when they are asked to nominate a student for a gifted and talented school program. Teachers may well be aware that there is certain brightness there but feel that the student should mature socially before being considered for such a program. That day will never come unless an intervention program is put in place which promotes this maturity.

In the meantime the GLD boy will continue along the path of destructive behaviours, gaining a dreadful reputation and steadily losing his potential.

The Four Step Intervention Programme

[Extract from "The Responsive Teacher Course"]

Teachers and parents who are faced with the challenge of meeting the emotional, social and cognitive needs of GLD students require an exceptionally differentiated program which is effective, efficient and pragmatic.

The 'Slaying the Dragon' Program was devised and taught by me for over ten years. Recent developments in the field of neuroscience have resulted in the updated version of the program which is outlined below.

GLD students who are currently enrolled in full-time education at the Alpha eLearning virtual facility benefit from the on-line version of the program.

Step 1 Identifying GLD Students

- GLD Preschool Profile
- GLD Parent Information Checklist
- Teacher Observation Tools [GLD Learners]
- Standardised Test Results

Step 2 Analysis of Specific Needs

- Synergistic Learning Profile
- Specific Learning Difficulty Report.
- Wechsler Test of Intelligence.
- Agency Reports
- GLD Template Tools

Step 3 Eradicating Learned Helplessness

- Training in Metacognition.
- Regular Conferencing Sessions.
- Mapping Change
- Emotional & Social Skills Training
- Family Support
- Individual Counselling

Step 4 Designing an Individual Program

- Slaying the Dragon
- Direct Daily Intervention
- Curriculum Compacting
- Celebrating the Gift
- The Mentor Program

Anthony: A case history

Anthony displayed the classic early characteristics of a gifted learner. He was a sleepless baby who seemed to be interested in everything. His mother reported that, from an early age, she had to carry him around in a sling so that he could view the world. He spoke complex sentences at 12 months, learned to read by two years of age and asked endless 'Why?' and 'What if?' questions.

He didn't play with other toddlers but loved the company of adults. Anthony's idea of play was to dismantle the clock to see how it worked or, on one occasion, to attempt to take the toilet system apart. He was late in walking and seemed to lack both gross

and fine motor skills. He often fell over and was fearful of playground equipment. He didn't play in the expected ways and avoided other children.

By the age of three years his parents were convinced something was wrong with their son and consulted an educational psychologist. Anthony loved the sessions with the psychologist who provided lots of interesting conversation. The psychologist's conclusion was that Anthony was a bright child and the parents were worrying over nothing.

Anthony entered school eagerly on his fifth birthday. An astute teacher noted his intelligence but also remarked upon his lack of social and play skills and on his inability to dress himself properly despite instruction. By the third week of school Anthony was unhappy. He asked his parents "Why do the children not accept me?"

Anthony, who was always full of energy and enthusiasm, became reticent. The light faded from his eyes. He became withdrawn. As he moved from class to class the pattern was always the same. Initially his new teacher would enthuse over this delightful new child in the class. Invariably, by about the third week, the teacher would telephone his parents to express concerns about Anthony's lack of play skills, lack of co-ordination and generally disorganised behaviour.

His reading age was four years above his chronological age and his oral language skills were highly developed. The children called him 'the little professor' because of his sophisticated speech patterns. On two more occasions concerned teachers referred Anthony to an educational psychologist for assessment. On each occasion the response was the same. There is nothing wrong with the child. He must have pushy parents.

Anthony's writing was large and poorly formed. He could not complete simple physical tasks such as using scissors. Teachers reported that he was becoming increasingly withdrawn and tended to 'space out'. Although highly imaginative he could not produce a legible, ordered piece of writing. Number work presented a challenge because he could not grasp sequence. Learning tables was a nightmare.

At the age of nine Anthony finally found help

An SLD assessment noted Anthony's verbal ability but pinpointed delays in gross and fine motor skills. The Wechsler Intelligence test showed the classic GLD wide subset scatter of abilities with exceptional ability in the area of verbal performance and deficits showing in the areas of visual perception.

At the age of nine Anthony finally found help. He visited a motor skills specialist who diagnosed Dyspraxia, a condition which affects motor planning. She also expressed concern about Anthony's ability to see which she suspected was more severe than the short-sightedness for which he wore glasses.

Anthony was referred to a developmental optometrist who found Anthony lacked binocular vision. He was able to read because he unconsciously shut off the vision from one eye but for other activities he saw double. He had poor stereoscopic vision

so he had no appreciation of depth and he had limited peripheral vision so he could not see much beyond that which was directly in front of him.

He also had slow motor speed which accounted for the difficulty he had in finishing a piece of written work. Despite these severe problems Anthony's school performance was average or slightly below average in certain areas, with flashes of high verbal ability and problem solving ability.

Anthony's intelligence had masked the worst effects of severe physical impairment. No wonder Anthony felt tired at the end of a normal school day! I began to teach Anthony using the program which I had devised and which I have outlined above.

Within weeks he changed, becoming once again the lively child he had been before entering school. He used an Alpha word processing machine to write. Freed from the stress of having to form letters, which he could not see clearly, he became a prolific writer. The first writing competition he entered he won a book. The next competition he entered was a competition in creative writing. Anthony was competing against children several years older than himself but he won the cup. That was a wonderful day and was a validation of all the people who had helped Anthony and of Anthony himself who struggled against severe learning impediments but never gave up.

The anguish which his family experienced is typical of the pain which the families of GLD students suffer. The provision of accurate diagnosis and a comprehensive intervention program freed Anthony to use his giftedness in productive easy.

Anthony continued to go from strength to strength. He is now in tertiary education. His ambition? To work with at-risk youth who have been alienated by the system. In my work with GLD students I have often seen a similar pattern. The good news is that these students respond well to provision of an appropriate program of intervention and enrichment.

The way to success is the collaborative support offered to the student. Freed from the fear of 'different' or 'strange', freed from the deep-seated loneliness, students experience renewed hope and energy. Being agents in their own renaissance is vitally important. They are able to use their giftedness, their insights and their thinking skills to overcome the worst effects of their learning difficulty.

Below are the remarks of one of my former students who transferred to another town. His parents were fearful of the detrimental effects of losing the program. I attempted to reassure them that their son had been engaged in the GLD Intervention program for a sufficient time which would allow the changed behaviours to become permanent; still the parents remained anxious but their fears were settled by their son. "Wherever I go, I'll be fine. I now know who I am."

The Emotional Toll of Being a Twice Exceptional Adult: A Case Study

Claire D. Spicer
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Lisa's arms are hidden by long-sleeved shirts, t-shirts or jumpers. Even in the heat of Australian summers she keeps them covered. It's not the shame of the cuts, the dulled scars in her flesh, which stops her from showing her pale arms. It's the bright red trails of destruction that illustrate recent attacks that she hides from the world.

Lisa has attempted to take her life at least three times. I use the term 'at least' because Lisa herself cannot confirm whether the times she was rushed to hospital, for self-harming, were expressions of pain and stress or attempts at taking her own life.

Meeting Lisa is like unwrapping a toy, complete with new batteries. At first glance Lisa is effervescent, funny, and beautiful and shines with happiness. She exudes confidence when she speaks. She is intelligent and passionate about a wide range of topics including education, wildlife, the environment and creative arts. This initial glimpse into her life is brief and enjoyable; the surface you see is stunning. However, after time, when she becomes comfortable in your presence, after multiple encounters, the toy that is her personality, her life, begins to wind down. On her bad days, she is moody and sullen. On her worst days, she is depressed, melancholic, dark and bloodied. These are the days that she shuts herself away, emails her teachers and employer to advise them that she is ill. Lisa admits to sitting or lying on the bathroom or kitchen floor contemplating the razor or knife blade she holds in her hands. She says she stares at it, watches the natural light bounce off the steel and feels it calling to her, drawing her attention. She makes timid cuts in her flesh, her arms, her thighs, her stomach or chest and cries at the release she feels as she watches a trickle of blood escape. Most days these cuts remain superficial, they heal quickly and without deep scarring. However, on occasion they have turned into deep gashes that required extensive suturing or even stapling.

Lisa is 23 years of age. She is studying an undergraduate degree at an Australian university. As a primary student she was labelled a child with "additional learning needs". During her secondary education she was 'found' to be artistically gifted. Lisa is a twice exceptional young adult.

The needs of twice exceptional individuals

Research into twice exceptional students is growing slowly but steadily. Studies have clearly identified that twice exceptional students pose quandaries for their teachers

(Reis & McCoach, 2002; Ruban & Reis, 2005) as they have very unique strengths and weaknesses. Although research has studied various areas of twice exceptionality, one factor remains incredibly important for parents and educators: as children grow older the gap between their actual performance and their expected performance widens especially as the content of their lessons becomes more difficult (Reis, McGuire & Neu, 2004). In addition to the educational needs of such students, their socioemotional needs are critical to their overall academic achievement and are, quite frankly, as important as their academic ability (King, 2005).

When Lisa attended primary school, she was bored by writing essays or stories and reading aloud in class. She also found such, traditionally simplistic, tasks to be difficult. Upon reflection she believed this was due, in part, to her school teacher's verbal feedback. "My teacher would tell me that my work was 'no good', that it 'lacked depth, structure and cohesion'. These words meant nothing to me then". As Lisa continues to speak she becomes teary. "When I used to try and read aloud, I took so long to get through a sentence that the teacher would become impatient and instead of letting me continue, like she did the other children, she would huff loudly and stop me at the full stop, instructing someone else to 'take over' ". Lisa's memories of her English classes are so painful; she still cringes when she is required to write an essay for her undergraduate degree.

Schooling is a social, language-based experience for many children. For those students with learning difficulties, who are gifted learning disabled or have gifts and talents in 'non language' domains, school can feel like a "secret arts lesson" (Baum, Cooper & Neu, 2001, p1). Because twice exceptional students display both an academic strength and weakness, they can easily baffle their parents and teachers, who may accuse them of being lazy (Assouline, Foley Nicpon & Whiteman, 2010). Therefore, twice exceptional students can feel trapped by their learning deficits but their gifts ignored (Baum et al., 2001). As a result, many twice exceptional students fail to achieve at levels that are commensurate with their gifts (Baum et al., 2001; Reis & Ruban, 2005) especially when they are misidentified (Ruban & Reis, 2005) or their strengths and weaknesses interrelate (Coleman, 2005). In essence, twice exceptional students can find themselves living in two distinct worlds, one which supports their strengths and another that fears, misunderstands and misinterprets their inconsistencies (Cash, 1999).

Research hypothesises that there are three subgroups of twice exceptionality. Students who are identified as gifted but who struggle to achieve are the first group. The second group is students whose learning disability is so severe that their giftedness remains undetected at school. The third and final group refers to students whose giftedness and learning disability mask each other (Conover, 2002; Fetzner, 2000; King, 2005; Ruban & Reis, 2005). It is this third grouping of students, whose strengths and weaknesses cancel each other out, which are the most problematic for education.

Lisa is discovered

I met Lisa, by chance, when she attended one of my lectures at university. She escorted a friend to class during her free session. "I initially went along because I didn't have anything else to do. Perhaps it was fate. You were speaking about giftedness and then you spoke about something called twice exceptionality. This was a term I had never heard before, but I knew, I knew that it applied to me. So, I did the only thing I could, I begged my friend to introduce us."

It's been two years now since Lisa and I first met. We meet often to discuss her past schooling experiences and her current studies. It was, in fact, Lisa who asked me to write about her experiences, detailing her struggles.

Lisa is currently undertaking a fine arts degree. She enrolled in university at the age of 21, as a mature-aged student. During her senior year at high school, the careers advisor told her she lacked the academic ability for university study and recommended, sternly, that Lisa either travel or work full time "in a shop or something". So, Lisa did just that. She started working in a pet store, in a large shopping complex. During the quiet hours she sketched the puppies and kittens and any other pet that grabbed her attention. It was a shopper's comment that sparked Lisa's determination to pay more attention to her first, and by self-admission only, love – art.

"I was sitting behind the desk and had my sketch books out when this lady walked up to ask a question. She commented on my colour tones, on the quality of my stroke, she called it 'strokemanship'. She said such nice things that I remembered how good it felt to do art. I hadn't paid much attention to art since high school, but it came flying back at that very moment," she says.

When Lisa started art classes, in her junior year of high school, her teacher realised she had an exceptional talent. The teacher originally suspected that Lisa's parents had helped her with a portrait so the teacher gave Lisa an assignment, over the next few weeks of class, to draw her own (the teacher's) portrait. Because she had watched the process and was amazed by the final piece, the teacher recommended that Lisa be assessed for artistic giftedness. Unfortunately, as Lisa had a troubled academic background, the request was denied by the school. Regardless of this, the words of encouragement given to Lisa by her teacher motivated her to continue her artwork at home.

Her interest in art now sparked, Lisa attempted to use it in other classes. However, her teachers saw this as an attempt to avoid work, especially the written component of tasks. Knowing that Lisa had been diagnosed with a learning disability at primary school, her teachers all but ignored her arguments in favour of incorporating art into her projects. Eventually, after the persistence of her art teachers, Lisa was 'found' to be artistically gifted. She completed senior arts classes and participated in school and state competitions where she was very successful.

Strengths, weaknesses and ADHD?

Twice exceptional students have been found to have a range of academic strengths and weaknesses. Strengths can include visual memory, spatial skills, extensive vocabulary, sense of humour, imagination and creative ability and insight. Learning difficulties can include difficulty with phonetics, spelling, handwriting, memorisation of information, lack of organisation, poor reading and mathematical skills, difficulty with expressive language, limited attention spans and an inability to focus (Baum et al., 2001; Conover, 2002; Fetzner, 2000; King, 2005; Yssel, Prater, & Smith, 2010).

In Lisa's case she has difficulty with verbal memory, spelling, handwriting, verbal reasoning and expressing her thoughts as words. By grade 3 she was referred to the school's learning disability team where her parents were consulted about Lisa's additional learning needs. However, they were also asked to seek a medical consultation for ADHD.

Consultations and enquiries about ADHD are not uncommon for students with learning disabilities or giftedness. These children can display high levels of activity in some areas, distractibility and a reduced attention span (Hartnett, Nelson & Rinn, 2004; Rinn & Nelson, 2009; Webb & Latimer, 1993). However, although similarities can exist, children with ADHD generally show variability in their performance quality and can have difficulty sustaining attention and concentration in most tasks and activities (Reis & McCoach, 2002). When gifted, and twice exceptional, children exhibit such distractibility and lack of attention it is generally a result of being unchallenged and bored (Martin, Burns & Schonlau, 2010; Reis & McCoach, 2002).

When Lisa told me about her early years of education and the constant referral to specialists she became enthused about her symptoms of ADHD actually being examples of her giftedness. "I used to love drawing and talked about what I was doing. I did try and avoid written work, especially big assignments, so that could have looked like an attention issue, but my ability to work for hours on a picture was evidence of my ability to concentrate for extended amounts of time. A sign of my giftedness. I used to complete visual puzzles, look up things on the computer and always had a sketch book with me, even in my pocket. If my teachers had thought that this was a positive thing, rather than an excuse, perhaps they would have realised I was gifted learning disabled much sooner." Becoming visibly angry Lisa now questions whether this realisation would have stopped the incessant bullying she endured, from both students and staff, throughout primary and secondary school.

Self-harming behaviour

Lisa started to express her pain in more "unusual ways" when she was in high school. She believes it was a combination of teacher comments and teasing from other children that led her to this 'outlet'. "When I was in year 8, I started to shave my legs for the first time and I accidentally cut myself. But instead of it stinging or hurting, it felt, well, good. It was like this release of pent up energy and emotions that I couldn't release another way. From then onwards, whenever I had a bad day at school, I would

stand in the shower and shave my legs, twice a day if needed, deliberately nicking myself," she states.

Initially, no one saw the marks on her legs because Lisa refused to participate in sports and her family lived in a cool climate of Australia. Due to scabs that wouldn't heal quickly, she began cutting other areas of her body including her thighs, stomach and breasts. During the school holidays, the wounds would heal over but once school resumed she would be "back in the shower with the razor".

Research by Cross (2007) has noted that although there is a wide variation in the estimates of self-injurious behaviour of gifted students, they do indeed self-harm with cutting being one such method. Cutting is known for being a private act, one that is not meant for public revelation (Cross, 2007), however by the time Lisa was in senior school she had moved her cutting to her upper and lower arms. "I ran out of room on my lower extremities so I went to my arms. The first time my mother saw it she totally freaked. She had thought I had fallen into barbed wire at school. It took me hours to calm her down and explain to her that I was doing it to myself. She responded by ringing the school and demanded to know why she hadn't been told. The issue was, the school didn't know. At least until now," she says.

Lisa's school responded quickly, referring Lisa to their in-house psychologist who recommended Lisa be sent to a psychiatrist for evaluation and medications. Lisa begged her parents not to send her and to prove that she was better she promised not to cut herself to show them that she could stop. For a few months Lisa's mother checked her skin most days for marks, but eventually her parents' interest in their daughter's "odd behaviour" faded and Lisa resumed cutting.

As a young adult, Lisa continues to cut herself a few times a week. When things are very stressful, from work or university, after an argument with her parents or her partner, she resorts to self-harming behaviours. It is when she feels so bleak and dark that she has taken things too far. "Some days I sit on the floor of my bathroom or kitchen and stare at a razor or knife. I watch the sunlight bounce off it, rotate it around in my palm and start to cut. Each few cuts I stop and look at what I've done and sometimes I'm completely surprised at how deep I've gone or how extensively I've hacked at my body," she states calmly. "There have been occasions when my partner has come home to find me on the floor unconscious or close to unconsciousness. These were the darkest times in my life and triggered by major traumas. I don't know whether I was cutting or hacking, whether I was releasing or trying to end my pain," she says bluntly. On one occasion the hospital sent her home within five hours of stapling her skin and recommended she seek 'some help'. "It made me feel that they didn't care either so it exacerbated the cutting until I was able to get psychiatric help via the university."

Life as a twice exceptional young woman

Unfortunately little research has investigated how twice exceptional students succeed in school and whether such students proceed to university (Baum et al., 2001; Lovett & Sparks, 2010; Reis et al., 2004). Life at university, for Lisa, can be very difficult. She

is enrolled as a part-time student and is older than most of the other students. Although it was a stranger's comments, in the pet shop, that encouraged her to consider enrolling into tertiary studies, her parents were not supportive. In fact, after a conversation with her parents about returning to school, Lisa was so upset she cut herself so deeply, on her legs and arms, she required extensive stapling. "My parents could not see past my inability to write an essay. When I told them I wanted to study fine arts, they complained about all the phone calls, interviews and doctor appointments they had to attend with me during my schooling. I even showed them my senior artwork, ones that had been awarded school and state medals, but they could not see past my inability to write an essay," she mumbles as she cries. With the help of her boyfriend and a small group of friends, Lisa was able to write her application and 'wowed' the interviewers during the face-to-face.

Lisa has been learning to adapt to the demands required at university. During our catch-up sessions we talk about coping techniques, support networks and her future career options. She has been thinking about training to be an art teacher so she can help children who experience the same issues as herself. For twice exceptional tertiary students, university demands include autonomy, self-monitoring and the utilisation of problem-solving strategies (Reis et al., 2004). Twice exceptional adult students benefit from cultivating friendships with other students, photocopying their notes to fill in the blanks of their own, and taking a reduced load (Baum et al., 2001, Reis et al., 2004). Thankfully Lisa has been able to establish such support networks and with the help of the disability unit of the university, a small group of classmates and her lecturers, she is thriving.

Although the future does look bright to Lisa, she admits that her earlier memories of her schooling continue to haunt her. "Some days I wake up thinking about the comments made by my teachers and it drives me, in part, to cut myself in order to release the pain. I see a counsellor and talk to my partner, but my scars are obvious," she says. One could be confident in stating that Lisa's scars go much deeper than the skin she routinely pierces.

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Does This Sound Like Anyone You Know? Identifying GLD Children at School – One Mother's Experience¹

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Parents of gifted children with learning disabilities (GLD) often look back over their child-rearing years and bemoan the fact that their now adult children were not identified as either gifted or learning impaired when they were little – before the window of remediation was closed, and before the serious self-esteem issues had set in. They invariably claim to see in retrospect that the signs had always been there, but “no one noticed”!

Like other parents of GLD children, I too reflect upon a list of counter-intuitive and enigmatic ‘early warning signs’ which for years mystified me (and sadly too, my child, who was not identified as GLD till around age 13). I suppose I always knew that there was an issue – but I didn’t know what it was. I didn’t even know that it was worth wondering about.

With the permission of my GLD child (now a successful young adult), I’d like to revisit some of those early warning signs for the benefit of parents who may know or suspect that their child is gifted, but who are also haunted by a vague feeling that there may be something which is not quite right.

But first some GLD context.

Gifted children with learning disabilities are those who possess a high IQ and are capable of excellent academic performance, but who also have a learning disability (such as dyslexia, dysgraphia or auditory processing disorder), or a medical condition (such as ADHD), or an emotional issue (such as anxiety or perfectionism) or simply ‘something else going on’ which makes some aspects of academic achievement exceedingly difficult.

GLD learners are neurologically ‘screwed’ together in a way which is different to other children. They may excel in understanding and identifying complex relationships, advanced vocabulary, abstract reasoning (including mathematical

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reasoning), creativity, wide general knowledge, and observational skills. At the same time, the mechanics involved in writing, reading, basic computation and completing academic tasks, particularly timed tests, often present greater difficulties for GLD than for 'neuro-typicals'.

GLD children form a very heterogeneous group. If you've met one GLD, then you've met one. Accordingly, GLD children are hard to identify. The higher the IQ, the greater the difficulty. Research tells us that their high intelligence may compensate for their learning disabilities, and their disabilities may mask their intelligence, so that they present in a classroom as generally 'average'.

Gifted children with purely inattentive ADHD (the vague, dreamy, pre-occupied "invisible" sub-type of ADHD which is not accompanied by hyperactivity, defiance, impulsiveness or bad behaviour) may be especially hard to spot. They can just sit quietly and underachieve for years and years. Despite being perhaps highly gifted, such children do not present as 'academic', 'scholarly' or 'precocious'. Possibly because they are generally behaviourally compliant and otherwise 'non-squeaky wheels', they seem, to the casual observer, to fit the profile of 'plain average'. This situation is not the same as the highly gifted child who intentionally 'dumbs down' at school to gain peer acceptance or to defy the authority of parents and teachers. Inattentive ADHD children are not intentionally trying to pass for anything other than what they are: dreamy 'pixie-land dwellers'.

Worse than appearing to be consistently 'average' is the GLD child who occasionally 'pulls a rabbit out of a hat' and performs to his or her true potential. These are the children whom some experts call 'their own worst enemy'. Their uncharacteristically brilliant achievement on one test or assignment causes teachers to exclaim, "You see, you can do it when you try! This work shows that you are really smart! If you're not working like this all the time, it must be because you're just lazy."

Unidentified gifted children with disabilities certainly don't feel 'really smart'. Nor do they suspect that they are the victim of something sinister called 'learning disabilities'. All they know is that they are capable of extraordinary things – but some of the simplest tasks seem to be quite beyond them. They begin to wonder if they really are 'lazy'. They search in vain for a way to make themselves 'not lazy' anymore. In a frenzy of frustration, they acknowledge that it's a huge mystery why some days they do exceptionally good schoolwork and other days they don't. Sadly, they also learn quite rapidly that on the days when they perform brilliantly, they are more likely to get the 'lazy' lecture at school. They reluctantly conclude that it's less stressful to be seen as just plain average.

Despite difficulties in identifying GLD children, the professionals who have been advising us with respect to our child tell us that there are a number of well-recognised, research-based early warning signs which signal that a student may be both gifted and learning disabled. Paediatricians, language pathologists, psychologists, occupational therapists and behavioural optometrists all agree that these are the 'flashing red lights' which should prompt attentive and thoughtful educators to say, "Wait a minute. What's with this curious child who seems to march to his or her own beat? This learner's school performance just doesn't make sense. Let's take a closer look."

The following are some of these 'flashing red lights'.

1. A child who consistently scores in the 99th and 98th percentiles on the UNSW Maths, English and Science Competitions (now called 'ICAS'), and yet performs in a generally mediocre or wildly erratic way on regular school assessments.
2. A child who tops the year and scores a perfect mark on a cross-grade exam when tested in a room alone, and yet fails an exam of equal difficulty when the class is retested on the very same material a week later – and, is completely mystified and unable to account for the difference, except to say, "Well, for the first exam they put me in a room all by myself because I was absent when the others wrote the exam. The room was so empty and boring, and there was absolutely nothing to look at, so I just wrote the exam. In the second exam, the one they made me do in the classroom, the kid next to me was clicking their pen and I couldn't listen to the clicking and write the exam at the same time, so I just listened to the clicking"
3. A child who can talk about the content of the schoolwork insightfully with the teacher and can make positive and pertinent contributions to class discussion, who claims that the work is interesting and even sometimes 'fun', and yet who inexplicably fails the end-of-unit test on that same work.
4. A child who appears to be absorbing and delighting in every syllable of a lecture in class one day, and then in the same subject, mindlessly twists a protractor round a pencil with a dopey look on his face the next, or seems to be so sleepy that he can barely sit up straight.
5. A child who gets top marks in some subjects and fails other subjects and who, when asked why, replies, "Well in the subjects where I get HDs, I like the teachers and they are nice to me. In the subjects I fail, the teachers are mean and they yell – not at me, but at other kids – and I can't do good work for teachers I'm afraid of."
6. A child who climbs into the car day after day and bursts into tears because some other child has been unjustifiably punished for something that he allegedly didn't do, or has had his work ripped up in front of the class.
7. A child who has difficulty persisting with and completing tasks, even those which they may have begun with great enthusiasm and whose subject matter is of great interest to them.
8. A child who claims that they open their exam papers and think, "Oh good! I know all this work – I know all the answers!" and then proceeds to fail the exam, and can offer no explanation for the discrepancy.
9. A child who consistently performs better on multiple-choice or short-answer exams than on exams requiring longer essay-type answers.

10. A child who gets a perfect or near-perfect score on the first few questions in an exam, but still fails the exam because they work so slowly that they leave large portions untouched.
11. A child who confidently comes out of an exam room claiming that they've 'aced' it, but then fails because they have arrived at all the correct answers but have not shown their 'working out', or because they have read the question too quickly and have written a perfect answer to the (usually more difficult) question which they thought they had read.
12. A child who can effortlessly produce long sophisticated engaging compositions when allowed to use a keyboard or a scribe, but can manage almost nothing at all when required to handwrite a story.
13. A child who never masters cursive handwriting, and yet manages to just print very quickly, but whose class notebooks still contain about a third as many notes as other students'.
14. A child who claims to be unable to see any causal connection between effort expended and results achieved: "Whether I study or not makes no difference – some days I just 'feel like' writing the exam, and other days my head is so full of 'thoughts', I just can't make myself think about writing the exam," or "Sometimes I don't study for a test because I don't hear when the teacher tells us about it, and then I get to school and find out that we're having a test and I'm surprised and I worry that I haven't studied, but for some reason I just feel like doing a test that day anyway, and I end up topping the grade" or "I always try the same amount for all my subjects and all my exams – but some days I can get the answers out of my head, down my arm, and onto my answer paper – and other days I just can't."
15. A child who claims to sense that they learn new work faster, easier and better than most other children, and yet whose exam marks are almost always lower than those students'.
16. A child who complains that often the work is too easy, that the teacher repeats the same new work over and over until the very last child understands it, and that sometimes school can be achingly boring, and yet who fails an exam on that very same 'easy' work.
17. A child who reports that they like school best on days when they are allowed to actually do things (e.g., practical science experiments) instead of just listening to the teacher talk or copying off the board.
18. A child who regularly fails to do homework which they claim that they didn't hear being assigned or who actually does do the correct homework, but then doesn't hand it in because they don't hear when the teacher asks for it.

19. A child who does the homework which they believe has been assigned, and yet arrives at school and is surprised to find that they have done Exercises 7.8 and 4.3, instead of the assigned 8.7 and 3.4.
20. A child who has trouble following oral instructions of more than two or three steps, and who can be seen watching other children in order to know what to do next.
21. A child who is far worse than their peers at organising themselves and their possessions, who is constantly losing things and 'forgetting' things, and who often packs the wrong books for class.
22. A child whom teachers describe as unerringly behaviourally compliant, and yet who complains at home that some teachers always seem to be mad at him and don't like him.
23. A scatter of eight or more points between the child's highest and lowest scores on the various sub-tests of the WISC III.
24. A particularly low score on the 'Coding' sub-test of the WISC III (when compared to the other sub-test scores).
25. A surprising lack of correlation between the child's scores on the WISC III (ability) and the WIAT (achievement), and a school psychologist's report on the results of those two tests containing numerous observations that the child's results are 'highly unusual', but suggesting no follow-up investigation.

From Years 3 to 8, my child exhibited every single one of the 25 early warning 'flashing red lights' listed above – and yet no one noticed!

School report cards and teachers' scribbled diary notes exhausted us with their predictability: "...must try harder/concentrate more/write faster/write neater/write bigger/write anything at all/learn to pay attention/stop dreaming/learn to listen/participate more in class/stop calling out the answer without being asked/learn to be more consistent/focus faster/learn to control emotions/stop guessing/start working to potential/learn to be more persistent/apply yourself more/learn to study/remember to do homework/learn to keep track of books/stop losing homework/learn to be more motivated/stop making excuses for poor performance...." and of course, the 'market leader' in the blame-the-child department: "Could do better..." Lists and lists of all the child's miserable shortcomings – but no concrete suggestions as to how to identify what was really causing them.

Admittedly almost all children will at some time or other exhibit some of the behaviours listed above to varying degrees. The point is that not all children – or even all gifted children – will exemplify all or even most of these 25 early warning signs consistently over many years. I am advised that two or three of them alone should have been sufficient to prompt most insightful educators to pause and make further enquiries. However, probably because my child was a usually quiet, behaviourally

compliant, non-hyperactive, well liked, generally cheerful and seemingly happy all-rounder, neither a bully nor the victim of bullies, no one paid attention to the fact that my child was for years and years excelling one day and failing the next.

My timid and tentative questions over all this time to various teachers and school officials about my child's alarmingly erratic school performance invariably resulted in the same dismissive and unreliable responses: I was just being an overly-anxious, overly-ambitious mother, or my child was bright and perky and chirpy, but just a bit immature and would probably 'grow out of it', or all the strange inconsistencies must be just a 'fluke', or it was simply my and my husband's fault because we did not punish our child at home for poor grades.

Regularly I was challenged, "At school we punish them for bad grades. You must do that too. What possible motivation would a child have to get high grades at school if nothing bad ever happens to them if they bring home low ones?" I never did formulate a good retort to that question, but my instinct told me that punishment was not the answer. Sadly though, my instinct did not tell me what was.

By the time we began to put the pieces of the puzzle together and, having consulted a myriad of professionals, started to arrive at an accurate diagnosis, our child was finishing (and failing) Year 8. By then, the road to recovery was steeper and rockier. Our child's giftedness and self-concept had already been sacrificed at the altar of their disabilities. Our child had already internalised the school's message that LD stands for 'lazy and dumb' – and our child's resilience meter was stuck on zero.

It took us many years – and much professional support – to recognise that a 'square peg' need not be 'fixed' and rounded off – rather it's simply a matter of increasing the diameter of the hole. The "solution" is not easy and not straightforward, but it does exist – once everyone begins to ask the right questions and stops assigning blame.

Perhaps, if you're a parent, after reading this article you're beginning to have a bit of an anxious feeling or suspicion about your own child. Perhaps, if you're a teacher, you're beginning to think that the child described above reminds you of others in your classes. In either case, glance again through the warning signs listed above.

Does this sound like anyone you know?

Gifted Students Who Have Academic Learning Difficulties: Analytical Sequential Processing Problems?

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The dual exceptionalities of giftedness and underachievement manifest in a range of ways from the earliest stages of formal education. One group comprises gifted students who also have learning difficulties (Brody & Mills, 1997; Fetzner, 2000; Hishinuma & Tadaki, 1996; Rivera, Murdock, & Sexton, 1995). These students display a learning capacity that is characteristic of students who are gifted, in parallel with a specific learning disability in areas of academic performance such as literacy and mathematics.

For primary-age gifted students, the specific literacy learning disability is shown in areas such as reading, writing and spelling. Its cause is a difficulty using analytic information processing strategies that influenced their phonemic awareness knowledge and alphanumeric symbolic coding ability (Munro, 2005, 2002a, 2002b). Three types of literacy learning profiles have been identified. All shared the analytic sequential processing difficulty. The ways in which it influenced the literacy abilities depended on the domain/s in which the students were gifted.

A second cohort comprises those students who, in the middle to later years at their secondary education, display both gifted knowledge, thinking and learning capacity and also chronic underachievement in their academic studies. They are gifted academic learning disabled students or GALDSs (Munro, 2009).

Students in this group usually know they are comparatively high-level thinkers. They also know they are underachieving on key academic measuring sticks and they are aware that their peers are also aware of this. They may also display significant primary emotional or adjustment issues, such as Asperger's Syndrome and ADHD/D.

The gifted underachievers in the present study (Munro, 2009) did not have primary emotional or adjustment issues. Nor were their learning disabilities attributable primarily to sensory causes such as hearing or vision impairment. They were in Years 11-12 in a large independent school in Melbourne, Australia, studying for the Victorian Certificate of Education (or VCE). They came from a larger group that had displayed chronic underachievement in at least half of their VCE subjects. They were either referred by teachers or self referred to the schools' learning support unit.

They were seen as having academic learning difficulties because of the knowledge they displayed in conventional summative assessment contexts. Their classrooms

provided particular opportunities for their students to display their academic knowledge. Each assessment task provided a 'window of opportunity' for individuals to show what they knew. They needed to do this in acceptable ways. These students, while gifted, were rated by these tasks as having comparatively low academic knowledge.

The present study investigates the learning profiles of these students. To do this, it links the demands made by academic assessments with the extent to which these students meet these demands. It also describes an approach to intervention that draws on the research outcomes and that equips these students to meet these demands.

The measuring stick for academic success: The written analytic text response

Throughout their secondary education, students are required to show their knowledge of topics in a range of subjects by completing formal assessment tasks that involve skill in reading and writing. These include students needing to:

1. read and think in multiple choice question, short answer contexts; and,
2. display knowledge in longer written responses, for example, to write reports and factual essays.

To use an assessment task as a 'window of opportunity' to show what they know, individuals need to work within the parameters it provides. Essays rarely say 'tell me all you know about ...' The students need to 'organise their knowledge' so that it aligns or 'fits with' the parameters of the task. The knowledge needs to be synthesised or linked with the assessment task parameters. There are conventions that students need to know to show their knowledge in acceptable ways.

One of the most frequently used 'windows of opportunity' is the written analytic text response. It is one of the most common forms of assessment used in most of the subjects in secondary assessment. It requires students to interrogate and manipulate their knowledge of a topic in particular ways according to the assessment parameters and criteria. They may need to transform, reformulate and extend their knowledge, consolidate and review their understanding in terms of the assessment task demands and display their understanding in writing.

Evidence that some gifted students may have difficulty showing their knowledge in writing has been reported by Assouline, Nicpon and Whiteman (2010). Their cohort comprised students who had both an average verbal IQ of approximately 130 and a written language difficulty. They note that gifted students who demonstrate difficulty completing written assignments are often perceived to be lazy or unmotivated.

To display their knowledge in an essay, the students need to organise it in terms of relevant verbal linguistic propositions in a hierarchical way. The essay writing requires the writer to identify and use appropriately the topic, the main ideas linked

with it and the details. These need to be organised and linked in paragraphs and sentences using the relevant writing conventions.

Before this the student interprets and understand task demands and links this with what they know. They may need to decide:

1. What the final outcome will 'look like'.
2. How they will align their knowledge with it.
3. How they will act on what they know to fit it into the 'window of opportunity'.

From a cognitive perspective, the interface between the individual's knowledge and the assessment task demands is provided by the individual's short term working memory. This is examined in the next section.

The cognitive processes involved in the written analytic text response

The demands made on student knowledge by conventional assessment tasks that use the written analytic text format can be unpacked in terms of two components (Munro, 2009):

1. What students have learnt earlier about both the topic and how to display their knowledge in this form; and,
2. What students need to do to display their knowledge for the specific task.

The first component includes what the students have learnt earlier both about the topics targeted by the assessment and about the conventions of writing essays. This would include, for example, what they know about how to write paragraphs and sentences, how to spell. It also includes the extent to which their knowledge of topics is organised in verbal linguistic ways, for example, the extent to which it is structured hierarchically in verbal propositions.

The second component includes what the students can do now in terms of their cognitive and metacognitive activity in manipulating their knowledge so that they can express it in this form. It includes what they know about how to sequence the main and subordinate ideas and how to interrogate what they know in terms of particular task demands.

The cognitive and metacognitive activity implicated both during learning and while responding to assessment tasks is mediated by working memory processes. The role of working memory in transcribing and editing texts has been shown by Hayes and Chenoweth (2006). To facilitate inferences about the underachievement of GALDSs, it is useful to described briefly relevant aspects of the working memory processes.

It is useful to identify two aspects of working memory when individuals are completing a complex task such as an assessment task: a short-term, temporary retention process of limited capacity and a long-term aspect that includes knowledge and skills acquired earlier (long-term working memory) (Kessler & Meiran, 2010;

Sohn & Doane, 2003). These two aspects match the two components mentioned above. The first component matches long-term working memory and the second component matches short-term working memory.

The knowledge retrieved from the long-term store during an assessment task is used both to encode the task information and to complete the task. The manipulation of this knowledge according to the task demands is handled by the temporary short-term retention processes. Both aspects of working memory predict performance outcomes. Further, as the involvement by long-term working memory in a task increases, the demand on short-term, temporary retention decreases. In other words, the more an assessment task can be completed by knowledge an individual can retrieve automatically, the less demand there is on attention-demanding short-term memory processes.

The ways in which an individual's existing knowledge is organised determines the chunks that are available to be used in working memory processes during learning (Brooks & Shell, 2006). Learning is the interaction between one's existing knowledge, ability to learn and motivation to learn. Motivation in learning is the means by which attentional resources are allocated and maintained.

Individuals encode information in working memory by 'reading' it in multiple ways. They use what they know to do this (Chincotta & Chincotta, 1996; Kessler & Meiran, 2010; the 'activated long-term memory hypothesis'). They can code it phonologically by 'naming' parts of it. This involves articulatory activity, either saying aloud or subvocally parts of the information. They can do this for both visual and verbal information inputs. They can also code it conceptually or semantically, by linking parts of the information with meanings they have already stored (Deluge, Raffone & Belardinelli, 2009).

Baddeley's (2003) model of working memory explains the multiple encoding in terms of two different processes: the phonological loop that manages verbal material and the visuospatial sketchpad for processing visual-spatial material. Evidence for their dual use is shown in the serial recall of digits by verbal retention processes and the recall of block patterns by spatial retention processes (Alloway, Kerr & Langheinrich, 2010). Information in different modalities is mediated by different processes.

The activity of the two encoding processes and the manipulation of the retrieved knowledge in working memory activity to meet the demands of the assessment task is managed by a central executive. It does this in part by allocating attentional resources at any time and influences individual differences in working memory span. This aspect of working memory processing is associated with self-regulatory abilities and executive capability. It predicts achievement on reading and maths tasks and does so independently of verbal comprehension measured by the General Ability Index (Rowe, Kingsley & Thompson, 2010).

The encoding processes individuals use depend on the relevant knowledge they have stored in long-term memory. They encode better information that is more comprehensible. This is shown in the finding that lists of concrete words are retained more easily in verbal working memory tasks than matching abstract words (Acheson,

Postle, & MacDonald, 2010). Both phonological and semantic coding facilitate the retention of the items processed.

Learning the conventions of writing

A key cognitive skill demanded in formal education is learning conventions. Conventions are learnt as statements or routines that students gradually internalise and learn to associate with meaning. When first learnt, these 'self statements' are arbitrary. Students learn these by 'being programmed' by their teaching; they represent key aspects of the teaching information as self talk.

Students learn the conventions for writing by encoding the teaching information phonologically. That is, they 'tell themselves what the information says'. This enables them to retain it in working memory. This has the status of 'learning it by rote' until they analyse it semantically and to 'make sense' of it by linking it with what they know.

Students encode the arbitrary information by using analytic sequential thinking as follows. They:

1. analyse the information into parts or details;
2. name these parts, and link meaning with them;
3. link them in the sequence in which they are presented, retain them with this organisation or sequence; and,
4. use this to synthesise the intended meaning .

Students learn to use the conventions for showing their understanding in writing as they progress through the primary and secondary school. To do this they apply analytic sequential thinking to written language input. If GALDSs have had difficulty benefiting from the earlier teaching to learn to use the conventions, they may have had difficulty using analytic sequential thinking. If this were the case, one would also expect the difficulty to be shown in their knowledge of spelling patterns.

The study examines whether GALDS have an analytic sequential processing difficulty that restricts their ability to learn and their use of essay writing conventions.

Working memory and gifted learning

While the analysis of working memory processes by gifted learners has attracted relatively little interest, the existing research shows that gifted children have better developed working memory capacity and use self-regulatory abilities more effectively than their average-ability peers (Duncan & Owen, 2001; Geake, 2008; Rypma, Prabhakaran, Desmond, Glover & Gabrieli, 1999). Enhanced self-regulation efficiency is linked with their elevated self-motivation (Calero, Garcia-Martin, Jimenez, Kazen & Braque, 2007).

Gifted students show better developed working memories than matched peers in two areas: verbal-numerical processing and visuo-spatial working processing (Vock & Holling, 2008). Both components are useful for measuring high cognitive abilities and explain substantial variance in school achievement.

When compared with non-gifted peers, gifted children show higher mental-attentional capacity, more rapid responses on speeded tasks of differing complexity and are more resistant to being distracted from tasks requiring effortful inhibition (Johnson, Im-Bolter & Pascual-Leone, 2003).

Implications for GALDSs

This review of the role of working memory in displaying knowledge in analytic written tasks leads to various predictions about GALD performance (Munro, 2009). To what extent is the academic underachievement of GALDSs associated with:

1. the long-term working memory processes; and,
2. the short-term working memory processes ?

Long-term working memory processes relate to the students' knowledge of written text structure, the conventions of writing and the subject or topic knowledge about which they will write. Given that the GALDSs are gifted in at least one domain of verbal and nonverbal knowledge, one would expect superior vocabulary knowledge and the ability to think creatively about topics. Possible causes of difficulty may be an immature knowledge of writing conventions and/or topic knowledge organised in non-linguistic ways.

As well GALDSs can be gifted in one or more domains of knowledge. The general learning patterns of students gifted in the nonverbal or visual-spatial domain have attracted increasing attention in recent years (see, for example, Mann, 2005). One might expect that verbally GALDSs may differ from their nonverbally GALD peers in their capacity to meet both the long- and short-term working memory demands of analytic writing assessment tasks.

Short-term working memory processes relate to the students' ability to encode information by processing it semantically and/or phonologically so that they have stored it as names. The capacity of short-term working memory is limited by the extent to which particular salient aspects of the information are identified uniquely by naming. It is possible that GALDSs may have difficulty with aspects of the naming process.

In summary, GALDSs meet the criterion of being gifted knowers and thinkers in what and how they think about topics they are learning. Their difficulty arises in aligning their knowledge with the 'window of opportunity' provided by the conventional knowledge assessment tasks.

Assessment tasks involve students linking their existing knowledge of a topic with the task parameters. GALDSs don't do this well. They are less able than their non-GALD peers to use the assessment tasks to show what they know. This research was aimed at understanding more about this difficulty. It examines patterns in the learning profiles of these students.

The participants in the present study

The GALDSs in the present study were selected using the broad criteria specified by Lovett and Lewandowski (2006): a comparatively conservative criterion for general ability and significantly below-average achievement in a subject area, and excluding other primary causes or explanations of the low achievement such as emotional or sensory difficulties. It was not seem as appropriate to exclude students who displayed low motivation to achieve academically.

The GALDSs displayed:

1. crystallised reasoning ability (ACER General Select) and/or fluid reasoning (Ravens Progressive Matrices-Advanced) in the top 10 % of their year cohort.
2. achievement in subjects in at least 4 of the 8 KLAs in the lowest 20th percentile range over at least two school terms and for at least 3 assessment tasks in each subject.
3. creativity potential in the verbal and figural domains on the Torrance tests of creative thinking above the 80th %ile for their year level.

The performance of the GALDSs (n = 42) was compared with a cohort of successful gifted academic learners (n = 45) and a cohort of average academically underachieving learners (n = 44). The GALDSs cohort was further divided into three subgroups depending on the domain in which they were gifted: those gifted verbally (the verbal GALD students, n = 11), those gifted nonverbally (the nonverbal GALD students, n = 18) and those gifted both verbally and nonverbally (the both gifted GALD students, n = 13).

The areas of knowledge assessed

The performance of the GALDSs (n = 42) was compared with the other two cohorts on the following tasks:

1. their ability to encode three types of arbitrary information in an analytic sequential way in working memory. For this, three tasks were used from the Detroit Test of Learning Aptitude (Hammill, 1998):
 - i. visual symbolic information using the Design Sequences task;
 - ii. connected verbal information using the Sentences Imitations task; and,
 - iii. individual word information using the Word Sequences subtests.
2. their vocabulary using the Word Opposites subtest on the Detroit Test of Learning Aptitude.
3. their reading comprehension and orthographic skill using the English Skills Assessment (ACER, 1987).
4. the characteristics of their written analytic text response in English. The task required them to:
 - i. recall the relevant content and to use it selectively;
 - ii. organise and structure the ideas in the writing so that it communicates their intended message; and,

- iii. use the conventions of written language, for example, sentence form and grammar, spelling and paragraph conventions appropriate to the specific purpose of the written task.

The students' ability in each of these aspects was rated on a 5-point scale. Each aspect was assessed as much as possible independently of the other criteria.

The results

Performance trends for the GALDSs in the short-term and long-term components of working memory and writing are compared with those of their gifted able peers and their non-gifted learning disabled peers. The trends are summarised here. They are elaborated in Munro (2009).

Trends in using the short term component of working memory

Four trends can be identified in the encoding of arbitrary information in a verbatim format in short-term working memory.

First, the ability of the three cohorts to encode the three types of arbitrary information in an analytic sequential way in working memory was compared. The GALDSs showed a similar information span in the three information contexts ($p > .05$). Further, they retained a similar amount of information in each context as did their non-gifted underachieving peers ($p > .05$) and less information than their gifted peers ($p < .01$). These data suggest that the GALDSs as a group are less efficient in encoding data verbatim in short term working memory than their gifted peers.

Second, the three GALDSs sub-groups were compared in their analytic sequential encoding ability. The following trends were observed:

1. The nonverbal GALDSs processed the three types of information less accurately than their verbal GALD peers and visual symbolic information less accurately than the both gifted group ($p < .01$).
2. The verbal GALDSs and both gifted GALDSs found the visual symbolic information easiest to encode and retain in order while the nonverbal GALDSs found the individual word sequence easiest ($p < .05$).
3. The verbal GALD group processed visual symbolic information more efficiently than their both gifted GALD peers ($p < .05$).

These trends are superficially counterintuitive but assist in elucidating the processing differences between the three sub-groups. If the assumption that the retention of the three types of information requires student to name the items to be retained, then, for those students whose verbal reasoning is lower than their nonverbal reasoning, language retention of information will be easiest when the information is presented in a named form. This group found the recall of sequences of individual words easier to retain than the other types of information. This would explain why the nonverbal GALDSs were more able to encode the verbal information; they were given the verbal labels here. Access to higher verbal ability allows the verbal and both gifted GALDSs to name the visual information verbatim more accurately.

These trends may be counterintuitive here. One might expect, for example, that nonverbal GALDSs would retain nonverbal information better than verbal. It needs to be remembered that the tasks here did not require students to reason about the information but to retain it verbatim. If phonological naming is required for this, the task for which the names of items are already provided may be expected to be easier to retain.

Third, comparison of vocabulary knowledge of the cohorts showed that the performance of the GALDSs fell between that of the gifted and non-gifted students. Of the three GALDSs sub-groups, those gifted verbally had higher vocabulary knowledge than those gifted only in the nonverbal domain. It is possible that the vocabulary task used here favoured those gifted verbally because it required the ability to link meanings in an abstract way. Alternative vocabulary tasks that asked students to recall word meanings in context may have elicited a higher score for the nonverbally gifted group.

The fourth trend related to the process of allocating names to the information to be encoded and retained verbatim. The efficiency with which individuals recall the items in order is assumed to comprise two components: the size of the set of names to which the individual has access (the individual's vocabulary) and the ability to allocate and retain the names sequentially. Removing the vocabulary score from the information span scores permits an analysis of the ability to name during working memory encoding.

Controlling for differences in vocabulary knowledge between the GALDSs, gifted and non-gifted categories did not affect trends in recalling the three types of information by each group:

1. The three cohorts continued to differ in the efficiency with which they retained the information. This is consistent with the GALDSs allocating names to information to be retained verbatim less efficiently than their gifted peers and with similar efficiency as the non-gifted peers.
2. The three types of information did not differ in the demands they made on analytic processing. This is indicative of the naming process in the three contexts.
3. Similar trends were observed when the three GALDSs sub-types were compared following the control of vocabulary size.

These findings suggest a characteristic of the academic learning profile of GALD students is in how they encode various types of information used in formal education. The three GALD categories were not homogeneous in this. The nonverbal GALDs processed the various types of information least effectively. Their learning patterns were more like those of the non-gifted peers. It is possible that the nonverbal GALDSs were less able to encode the information because their verbal naming capacity was less well developed.

The four trends described above relate to the use of the short-term working memory component of working memory (vocabulary also relates to the long-term

component). The trends indicate both that the GALDSs differ from their gifted peers in how they encode arbitrary information in an analytic sequential way in working memory. They also show that the three subtypes of GALDSs differ in particular ways in the encoding process.

Trends in using the long term component of working memory

Three trends can be identified in the use of long-term working memory strategies to encode arbitrary information in a verbatim format.

The first relates to students' vocabulary knowledge. We have already noted trends in the vocabulary knowledge of GALDSs and their peers.

The second trend relates to the knowledge of literacy. This is shown in their reading comprehension skills. The three cohorts of students differed here; the GALDSs students did not differ from the gifted achievers and achieved higher than the non-gifted underachievers ($p < .01$).

The three sub-groups of GALDSs also differed in their reading comprehension. The nonverbal GALDSs achieved at a level similar to the non-gifted underachievers and below that of the verbal and GALDSs, who were similar to their gifted achieving peers. The students who were gifted in both areas lay between the two extreme groups but closer to the verbal GALD students.

The third relates to the influence of the knowledge domain in which the GALDSs are gifted on their working memory processes. The data show that the nonverbal GALDSs used phonological naming less successfully than their GALDS or their gifted peers.

The characteristics of GALDSs writing in written assessment responses

A second aspect of students' long-term working memory is what they know about expressing their knowledge in writing. Written assessment outcomes for the GALDSs, their gifted peers and their non-gifted underachievers on five extended written responses were evaluated and scored in terms of the three key criteria:

1. Knowledge and control of the chosen content.
2. Organises and structures coherently the ideas in the writing.
3. Uses the writing conventions to communicate effectively.

A number of indicators were used for each criterion. For each criterion, each student's written response was scored on a 5-point scale ranging from low (1) to high (5).

The verbal and both gifted GALDSs showed higher performance than the nonverbal GALDSs on the criteria 1 and 2 above ($p < .05$). The nonverbal GALDSs and the non-gifted underachievers showed similar achievement levels. The performance of the GALDSs was below that of their gifted peers on all criteria. These trends show that the GALDSs had a comparatively impoverished knowledge about how to display their knowledge in writing.

A writing profile was prepared for each student. This was used, as described in the following section, to implement an intervention for each student.

An intervention that targeted teaching working memory strategies for displaying knowledge in extended written assessment responses

The GALDSs were involved in an extensive intervention that taught them various aspects of how to express their knowledge in written tasks. The intervention did not teach the students new content area knowledge but rather how to align their knowledge with assessment tasks and to display a response in writing.

The intervention covered the following areas:

1. Naming activities; these targeted teaching students to encode their existing knowledge of a topic in a verbal form and included teaching them to name key vocabulary for a topic, and to describe in sentences what they 'see in their minds'.
2. Telling themselves about an assessment; this targeted the students learning to paraphrase what a task said and to visualise their finished written response might 'look like'.
3. Using self talk that guided them to organise what they know so that they achieve the intended purpose; this included the students learning self talk that directed their attention to the questions to be answered by the response, the extent to which the topic or overall message is conveyed, the relevance, depth and breadth of ideas, the vocabulary used, the sentence and paragraph ideas.
4. Using self talk that guided them to organise and sequence the main ideas, the ideas in paragraphs and in sentences.
5. Using self talk that guided them to use a range of writing conventions, for example, to introduce, develop, conclude, to linked paragraphs coherently, to write sentences and paragraphs.

In each of the areas the focus was on the students learning to use self instruction that guided them to use the appropriate strategies independently and automatically. To achieve this, each area was taught in the following sequence:

1. Recognition tasks; the students were taught to recognise when a particular writing criterion was or was not being used. For a student learning how to improve the depth and breadth of the ideas they were expressing, they were asked to discriminate between samples of writing that met the criterion and ones that didn't.
2. Scaffolding for strategy/action; the students were scaffolded by the teaching to use the criterion in their writing.
3. Teach the relevant self talk; the students described aloud the thinking /strategies they used to meet the criterion in their writing as they used them. This enabled them to code the writing strategy as self talk that they could transfer to other writing contexts and use in the future.
4. Automate the self talk; before the students began to express their knowledge in writing, they said aloud what they would do, the strategies they might use. This enabled them to use the self talk to direct their writing activity when responding to assessment tasks and to use it independently.

An individual intervention program, that drew on the five areas above, was implemented for each student, using their writing profile. The intervention followed a 'dynamic assessment' regimen that followed the four-phase teaching sequence to independence described above for each criterion. Each student continued to receive instruction on each criterion until they displayed it independently in five typical written responses to assessment tasks. In terms of the number of separate 'learning trials' for each criterion at each phase, the data indicate:

1. the nonverbal GALDSs needed more learning trials than their verbal and both GALD peers at the recognition, scaffolding and self talk phases for each criterion; their peers were more likely to have their existing knowledge of topics organised in verbal ways.
2. the nonverbal GALDSs were more likely to need instruction in naming, talking about their understanding of a topic in sentences, identifying the questions it answered and organising their topic knowledge in verbal ways.
3. the verbal and both GALDSs did not differ in the quality of the intervention they needed to achieve criterion writing achievement.

Discussion and conclusion

The findings of the present study elaborate and extend earlier investigations. First, they identify a cognitive cause for the underachievement of some gifted learners. While earlier investigators such as Mann (2005) have noted the learning outcomes displayed by these students, the present study assists in explaining them.

Second, the study indicates the types of tasks that can be used to identify the learning patterns of GALDSs. Tasks that require the allocation of names to information, whether it be verbal or visual, can be used to monitor the ability to 'self name' and to retain in a sequence.

Third, the study offers a research-validated approach to intervention for GALDSs at the senior secondary level. The intervention is referenced on each students' particular writing profile. It is reasonable to expect that GALDSs would exist in the student cohorts of most secondary schools. The intervention is systematic and explicit and able to be implemented by teachers who understand both the cognitive demands of expressing writing knowledge in writing, dynamic assessment procedures and strategy teaching to independence.

In common with primary-age gifted students who have literacy learning disability, the GALDSs had difficulty using analytic sequential information processing strategies. In this present study, these had influenced their knowledge of the conventions of writing and, for the nonverbal GALDSs, the encoding of their knowledge and understanding in verbal linguistic forms.

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Thinking Smart About Twice Exceptional Learners: Steps for Finding Them and Strategies for Catering to Them Appropriately

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The basis for this synthesis of our understanding of twice exceptional identification and service began with a project funded by the United State government. A Jacob Javits grant for \$.875 million dollars was awarded for a 5-year study of twice exceptional primary school children. Project 2Excel began in October, 2008, and continues to the present. The project includes 4 public (government) school districts, all of which serve gifted and talented children in homogeneous, self-contained classrooms. The districts were purposefully selected on the following criteria: (1) each provided a self-contained gifted program in a single school; (2) each provided additional cluster grouping programs in other district schools for those students who chose not to attend the self-contained program; (3) each had experienced “increasing” numbers of children who had qualified (or nearly qualified) for gifted services; (4) each had experienced qualified gifted children in the self-contained classrooms who were not “thriving” with their challenging curriculum and expectations; each had different demographics regarding racial make up, socioeconomic levels, and district size (number of schools and children served in the district).

It was hoped that by including settings with varying demographics on race, SES, and special education numbers, the results found in this project might be generalisable to other schools or districts in the state (and perhaps even in the U.S. or overseas). The four school districts participating included: (1) an inner city gifted magnet school, comprised of 1,034 gifted students in years K-8, a school within a larger urban district of approximately 40,000 students, housed in 56 primary (or primary/early secondary) schools and 15 middle or high schools; 42% of the students at this school are of color, 26% receive free or reduced lunch, 17% are second language learners, and 7% receive special education services; (2) a small, second ring suburban, “blue collar” district, comprised of 3 primary schools, and 1 middle and high school, respectively; 22% of the population are of color, 26% receive free or reduced lunch, 5% are second language learners, and approximately 5% are receiving special education services; (3) a moderately sized first-ring suburban district of 11,000 students, housed in 10 primary schools, 3 middle schools, and 2 high schools with 34% being children of color, 29% on free or reduced lunch, 7% being second language learners, and 7% receiving special education services in the district; (4) a moderately sized second-ring suburban district of 17,000 students housed in 14 primary schools, 4 middle schools, and 4 high schools, with 21% of the school population of color, 14% receiving free or reduced lunch, 4% as second language

learners, and 12% being service for special education needs. Within each of these school and district settings, twice exceptional learners were randomly assigned to treatment or control classrooms. For two of the districts, the experimental and control classrooms were housed in the same school and for two of the districts, the experimental, self-contained classrooms were housed in a single school and the control students were “clustered” in other schools in the same district.

The goals of Project 2Excel were fivefold: (1) develop a systematic identification system for gifted learners with Attention Deficit Disorders (ADHD) OR Emotional/Behavioural Disorders (EBD) OR Autism Spectrum Disorders (ASD) OR with Specific Learning Disabilities (SLD); (2) provide training for “experimental” teachers on twice exceptionality via an on-line series of courses leading to a Certificate of Twice Exceptional Education, additional in-service training on curricular specifics with built-in writing days across each school year, yearly stipends for materials and resources, and biweekly classroom supervision by project personnel; (3) develop a “toolkit” of strategies to accommodate/adapt gifted maths and reading/language arts curricula across the 5 years included in the project; (4) provide training and support to the parents of twice exceptional experimental and control students; and (5) to disseminate what is learned about identification, programming, and parenting with the larger communities of these districts and beyond via the “toolkits”, a parent resource manual, and a project website (www.stthomas.edu/project2excel).

In gathering data, matched pairs of gifted children identified with the same forms (and degree, as much as possible) of exceptionality were randomly assigned to experimental and control classrooms. The matched pairs were pre- and post-tested in their first school year in the project (September, 2009 - June, 2010) on maths and reading achievement levels (using the Iowa Tests of Basic Skills out-of-level), motivation to learn in maths and reading (CAIMI), and self-efficacy about maths, reading, and learning in general (Harter Self-Perception Scales). The experimental children began to receive their first year of 2e services and will continue to receive these services for the next four years of the project; the controls will continue with their current levels of services (for giftedness and for special education). Parents of the experimental and control students receive four training sessions yearly on home-based strategies and resources on twice exceptionality.

Strategies for Identification of Twice Exceptionality

From this multi-pronged study, we have learned 10 general lessons about identification for twice exceptionality at this point. These strategies range from what works in terms of instrumentation, procedure, and protocol.

Strategy 1: A tiered system of identification is needed

In “finding” our population of twice exceptional learners in this first year, it was necessary to develop a 3-tiered system (see Table 1). The first tier was a more general screening (involving a look at discrepant WISC-4 scores and gifted and special education behavioural checklists completed by teachers), and each successive tier relied on more and more sophisticated instruments to begin to “rule out” those

students who may have been over included or overrepresented in the first tier of identification. As Table 2 shows, there were distinct differences as well as similarities in the prevalence of twice exceptionality found among these four very different populations. One district tended to “attract” twice exceptional children to its self-contained program (families from other districts would send their children there, knowing that this program was superior). Other than this district anomaly, there were fairly even percentages of children identified for each twice exceptionality area. ASD, however, was significantly less represented than the research had suggested. As Table 2 shows, approximately 14% of the 504 gifted children in self-contained Year 4 classes were 2e. If we were to consider a class of 30 gifted learners, that means we could expect 4 of those children to present with a second exceptionality in each classroom. GT/ADHD learners represented 7% of the 504 gifted children. At 30 gifted learners in a self-contained class, we could expect 2 of those children to present with an ADHD disorder. EBD and SLD each represented 3% of the children in this study. Again, at 30 children in a gifted, self-contained classroom, we might expect to find 1 EBD and 1 SLD child in each 4th grade classroom. GT/ASD learners represented 1% of the 504 gifted children. At 30 children in a gifted self-contained classroom, we might expect that there would be 1 such child in every third classroom, based on the findings of this project thus far.

Table 1. Tiers for Twice Exceptionality Identification

| Tier 1 | Tier 2 | Tier 3 |
|--|--|--|
| <ul style="list-style-type: none"> Discrepancies among subtest or index scores on ability tests used by a district District characteristics or behaviour checklists of specific disability category provided to teachers of students “suspected” of presenting with a disability | <ul style="list-style-type: none"> ADHD: Connor’s Rating Scales EBD: Behavior Assessment System for Children (BASC-2); Behavior & Emotional Rating Scales ASD: BASC-2; Autism diagnostic interview (ADIR-R) SLD: Woodcock Johnson Tests of Achievement | <ul style="list-style-type: none"> ADHD: Connor’s Continuous Performance Test; Aschenbach Rating Scales EBD: Student Risk Screening Scale; Strengths and Difficulties Questionnaire ASD: Autism Diagnostic Observation Scale SLD: CTP; wrap (Writing Assessment) |

Strategy 2: There is a need for an identification team to identify precisely

In our project, it was discovered that the most precise and valid prevalences were found when the identification team included a special education person for each special education area, a gifted specialist, plus others in the school, such as the school nurse, school social worker, and any physician information in the children’s file.

Table 2. Prevalence of Twice Exceptionality in Project 2Excel

| District | GT# | ADHD (#, %) | EBD (#, %) | ASD (#, %) | SLD (#, %) | Total (#, %) |
|----------|-----|----------------|---------------|---------------|---------------|-----------------|
| A | 128 | 7 (5%) | 5 (3%) | 1 (0.7%) | 2 (2%) | 15 (11%) |
| B | 124 | 22 (18%) | 8 (6%) | 2 (2%) | 9 (7%) | 41 (33%) |
| C | 147 | 4 (3%) | 2 (1%) | 0 (0%) | 3 (2%) | 9 (6%) |
| D | 105 | 4 (4%) | 0 (0%) | 2 (2%) | 3 (3%) | 9 (9%) |
| Total | 504 | 37 (7%) | 15 (3%) | 5 (1%) | 17 (3%) | 73 (14%) |

Strategy 3: The identification team needs to be trained in using an identification protocol

All members of the team must practise with the spectrum of instruments (objective measures) and checklists (subjective measures) and child study observation techniques in order to achieve the greatest accuracy in identification as twice exceptional.

Strategy 4: The WISC-4 is valuable in providing “inclusive” data on potential twice exceptional children.

Children with discrepancies among their index scores of 23 points or more on this test of ability seemed to include all of the children who were ultimately identified as twice exceptional, but there may have been some false positives among this group. Later tiers of the identification protocol helped to rule these children out, that is, having underachievement or basically “weak” areas of processing not powerful enough to be considered a true disorder or disability.

Strategy 5: Don’t look far from the ‘family tree’.

The traits of twice exceptionality were, in most cases, found in other immediate family members within one generation of the child. There are, at most, 3 children to whom this does not apply.

Strategy 6: Finding twice exceptional children may be easier in gifted self-contained classroom than in mixed ability classrooms.

In mixed ability classrooms, the child’s giftedness may allow the child to look “average” so he or she may not be recognised as either gifted or special education qualified. In our project, when the control teachers were told they had a 2e child in their class, many mentioned that they didn’t believe it and that there was another child in there who was more 2e than the one pointed out!

Strategy 7: It is critical to look harder than we have previously for eligible girls. In this study, we found that especially for the disabilities that are emotional, attentional inattentive type of ADHD or for SLD that girls seem to be able to “hide” their issues more effectively, even when their disability is as severe as boys’ in the same classes.

Table 3. Developmental Prevalence: Single School (Case) Study

| Year | GT# | GT/ADHD (#, %) | GT/EBD (#, %) | GT/ASD (#, %) | GT/SLD (#, %) | Total 2e |
|-------|-----|-------------------|------------------|------------------|------------------|-----------|
| 3 | 128 | 5 (4%) | 5 (4%) | 1 (0.7%) | 2 (2%) | 13 (11%) |
| 4 | 128 | 7 (5%) | 5 (4%) | 1 (0.7%) | 2 (2%) | 15 (12%) |
| 5 | 128 | 13 (10%) | 8 (6%) | 5 (4%) | 10 (8%) | 36 (28%) |
| 6 | 128 | 5 (4%) | 3 (2%) | 2 (2%) | 6 (5%) | 16 (13%) |
| 7 | 89 | 10 (10%) | 6 (7%) | 3 (3%) | 2 (2%) | 21 (22%) |
| 8 | 88 | 13 (14%) | 5 (5%) | 4 (5%) | 2 (2%) | 24 (26%) |
| Total | 689 | 53 (8%) | 32 (5%) | 16 (3%) | 24 (4%) | 125 (19%) |

Strategy 8: Identification for twice exceptional may have developmental differences to some degree.

To test the accuracy of this, we collected full 3-8 data on one of the district schools and found a consistency in the prevalence at each year level. As Table 3 summarises, there was an anomaly found for Year 5 children in this school, but overall there was a small increase in numbers from year to year, culminating with Year 8. ADHD and ASD showed what increase in identification was evident. In interpreting these data, approximately 19% of the 689 gifted students followed in grades 3-8 presented with some degree of special education need. This would suggest that for a class of 30 gifted children in a self-contained classroom, we might expect 6 of them to be twice exceptional. By the end of Year 8, ADHD seemed to be the most prevalent twice exceptionality to crop up over time, suggesting that across a school, in each gifted classroom of 30 students we might expect to see 2-3 students who are GT/ADHD. SLD tended to emerge as a dominant area at Year 6, but in general one might expect to find 1 SLD student in a classroom of 30 gifted learners. EBD represented 5% overall of the gifted population in this school and we might expect to see approximately 1½ students in such a class (perhaps 1 EBD student one year, 2 in the next, etc.). And for

ASD with 2% overall of the 3-8 population, we would be seeing approximately 1 student in every other 30-student self-contained gifted classroom.

Strategy 9: The school nurse may be one of the best identifiers of twice exceptionality.

When one considers that this person has intimate knowledge of family illness, medications, family dynamics that impact a child's physical and mental health, there is a wealth of data there to inform the identification process about emotional, attentional, and autistic issues, in particular.

Strategy 10: It is important to help parents understand the importance of early identification.

In this project, we found that many parents "suspected" there was some issue in their otherwise very bright child before starting school, but were reluctant to have their child "labelled". This then allowed the child to struggle but remain "average" in their year level classroom, rather than to address and perhaps countermand many permanent self-efficacy and intrinsic motivational issues.

Strategy 11: We must look in three places for twice exceptionality.

Our first place was to find children in the self-contained gifted classrooms who were not "thriving" in the complex, multi-faceted, challenging learning environment (after ruling out deliberate underachievement). Secondly, we need to look in mixed ability classrooms for children who seem to have a "spark" but may not have been identified formally as gifted. And, a good look at the special education files, particularly at the intelligence test scores provided will alert us to highly discrepant sub-test and index scores on objective measures that may point to a processing or memory issue. In particular, in this study we found that discrepancies (23 points or more) between the verbal index score and the perceptual reasoning index meant there was a potential exceptionality being presented, but even more strongly were similar discrepancies between either the verbal or the perceptual index and the working memory and/or processing speed index scores predictive of twice exceptionality.

In consideration of the second goal of Project 2Excel, this first year of implementation produced several evidence-based strategies for addressing the distinct learning differences of twice exceptional learners in Year 4. These strategies are included below.

Strategy 1: No single strategy that addresses a gap, be it cognitive, affective, behavioural, or physical works for long. It is necessary to have a long list of possibles.

In this project, we found that there was approximately a 2-week "honeymoon" for a strategy, no matter what the category, and then it would be necessary to initiate another strategy to deal with the same issues.

Strategy 2: Strategies must be developed and integrated within the differentiated curriculum to cover several components of the "whole learner".

These components included: (1) specific adaptations of the curriculum; (2) cognitive access to the curriculum/meta-cognition; (3) behaviour adjustments; (4) social skills development/instruction; (5) self-awareness/self-regulation training; and (6)

physical accommodations to the learning space. Tables 4 and 5 list several strategies for each of these components.

Table 4. Curricular, Organisational, and Memory Development Strategies

| Curriculum | Organisational | Memory |
|--|--|---|
| <ul style="list-style-type: none"> • Multimedia resources to access outcomes • Technological tools, such as word processors, word prediction programs, calculators, spell checkers, etc. • Multisensory instruction • Real life tasks • Socratic method • Oral discussion using supporting text • Direct instruction in thinking skills, conceptualisation, and transfer • Elimination of distractions, busy-ness in learning content, direct, pertinent focus | <ul style="list-style-type: none"> • Graphic organisers, visual instructions, visual presentations, visual clarity checks, visual organisation • Checkpoints for long-term projects, work, content acquisition • Frequent, consistent progress monitoring • Added time to organise materials, assignments, desk, locker, etc. • Homework hotline • Simple specific place for submitting completed work • Consistency in schedule – advance warning of changes to schedule | <ul style="list-style-type: none"> • Instruction in how the mind remembers (metacognition training) • Instruction in how to highlight, underline, summarise information to be remembered • Visual imagery techniques • Use of environment resources to recall information –notes, texts, pictures, etc. • Posted cues, prompts, rules, steps for performing tasks (also copy attached to student’s private work space) |

Table 5. Self-Understanding, Social Skills, and Behavioural Strategies

| Self-Understanding | Social Skills | Behavioural |
|---|--|---|
| <ul style="list-style-type: none"> • Positive self-talk • Instruction in how to identify, challenge, modify, and replace non-productive thoughts • Relaxation techniques • Identification of a “go to” person at school for child to see when things begin to overwhelm • Instruction in how to externalise what is occupying the child internally | <ul style="list-style-type: none"> • Self-advocacy, self-efficacy instruction • Social stories • Video monitoring to provide self-management skills • Encouragement of risk-taking, self-initiated responses • Provision of catch phrases, response to use in “sticky situations” • Conflict resolution skill instruction • Provision of a “buddy” to aid social transitions in classroom, lunch area, playground, etc. | <ul style="list-style-type: none"> • Child identified motivators for maintaining expected behaviours • Direct behavioural modification does not work unless 2e child has negotiated how modifications will take place • Tangible self-monitoring and reflection charts to be used by student • Teacher works with 2e child on frequent, consistent basis, especially when task is to be started, progress needs monitoring, end of work time is coming • Muting of noise, light, temperature, colors, and clutter in classroom • Provision of fidgets, weighted blankets, shirts, yoga balls, tennis-shoed chair legs • Situating 2e child near teacher’s desk (up front) or next to positive role model for behaviour and learning • Lenience in letting child stand up, move, or remove self from setting when needed |

Strategy 3: A child “profiling” team must plan the specific strategies that address the child’s strengths and weaknesses.

The term, “profiling” has been consciously used instead of the special education protocol of “child study team” to allow for the educational strategy planning of children who are twice exceptional but not formally eligible for special education services. Members of that team, we have found when looking at the results in Project 2Excel, should include a special education specialist, a gifted education specialist, the school’s curriculum coordinator, a principal or deputy principal, and the parent of the child. The latter representation ensures that the child’s perspective will be included for consideration.

Strategy 4: It is important to not “water down” the gifted curriculum provided for the 2e child.

It is critical that in working through the intellectual strengths of the 2e child that we allow access to a stimulating, challenging set of outcomes and expectations as for all other gifted learners, but it is necessary to find alternative ways for the child to access this curriculum. We have found that often these children are very sensitive when things are “done differently” or “instead” for them and as a consequence they will fail to complete the work or refuse to use the proffered alternatives if they will stand out as being different than their classmates. Many of our experimental teachers found that providing alternative access openly for anyone in their classroom to select was the best way to allow the 2e child to accept the learning alternatives provided.

Strategy 5: Use an ORR chart (Observation-Reflect-Respond) to help identify ways to respond to the child’s strengths in the classroom.

Tables 6-8 show examples of how the ORR process can be used to work through the 2e child’s strengths in the “domains” of thinking, responsibility, task analysis, imagination, aesthetics, and socialisation. As can be seen, the teacher or parent is expected to identify positive behaviours in the twice exceptional child, then reflect on what this is saying about that child’s style, preferences, ways of learning, and then think of appropriate ways to respond to the child’s strengths, hoping to bring up an area of challenge in the doing. The use of such a strategy does, indeed, start with the child’s strengths but ultimately gets around to working on areas of concern through those strengths. This requires, for many, a paradigm shift in thinking about the potentiality of the twice exceptional child and particularly represents direction away from the medical or deficit model of “accommodation” for such learners.

Strategy 6: Consider the severity or degree of the disability or disorder in deciding which accommodation tools to use.

This strategy uses the term, accommodation, but for many researchers in the field, there has been an attempt to talk about strategies without ever mentioning the dreaded words, modification, adaptation, or accommodation. Too often these latter terms preclude focus on strengths or preferred ways for learning. That aside, however, this strategy basically tells us that there is no single tool that will work for all students who are GT and ADHD or who are GT and EBD. The degree to which the child presents with the second exceptionality as well as the degree to which the child expresses a gift or talent will mean finding the “perfect” set of strategies that address both sets of educational needs simultaneously. Even at that, the amount of time

devoted to implementing these strategies may also vary, according to the severity or degree of the exceptionalities on which the strategies are focused.

Table 6. ORR Chart for Thinking and Responsibility Domains

| Observation (T) Thinking or (R) Responsibility Domain | Reflection (T) Thinking or (R) Responsibility Domain | Response (T) Thinking or (R) Responsibility Domain |
|--|--|--|
| Sits alone and looks through reading materials for hours | Does this child enjoy learning about things? What are the child's interests? Does the child understand what is read? | Ask questions about reading materials. Collect books and articles that would be of interest to child. Provide variety of reading materials for the child |
| Asks questions about everything and anything. | What is the child curious about? How can I help this child answer questions? | Gather materials to find answers to child's questions. Talk with child about possible answers. Choose guiding questions to help child find answers. |
| Finds connections and relationships between things. | What is the process the child uses to see connections? | Ask child for observations of what is common or different between things. Ask child to explain how connections were made. |
| Remembers things that others forget. | Does child have a strong memory? | Play memory games with child. Memorise and recite poems and songs, lists together. |
| Brings home animals in need of care. | Does the child have an interest in animals? Does the child feel responsible for animals? | Introduce child to books about animals. Interview a veterinarian. Suggest helping neighbor with a pet. |
| Tries hard even when mistakes are made. | Does the child complete difficult tasks? Does the child deal well with frustration? Is the child persistent? Is the child a perfectionist? | Praise child's efforts. Explain a good way to learn is from our mistakes |
| Finishes a project on own. | Is the child able to work alone? Do adults in child's life help more than they need to? | Praise child for completing tasks. Give child added responsibilities |
| Talks about helping people. | What opportunities could I offer to the child to meet this need? | Join service organisations. Volunteer in community. |
| Is always ready for school on time. | Does the child take responsibility for himself? | Discuss issues about fairness. Give child more opportunities for independence. Praise child's organizational skills. |

Adapted from Besnoy, 2006.

Table 7. ORR Chart for Task Analysis and Imagination Domains

| Observation (TA) Task Analysis or (I) Imagination Domains | Reflection (TA) Task Analysis or (I) Imagination Domains | Response (TA) Task Analysis or (I) Imagination domains |
|--|--|--|
| Explains how to play complex game. | Is child capable of doing more complex tasks than I thought possible? | Let child explain the steps in a task to sibling. Play complex games with child. Ask child to help solve a problem. |
| Finishes long-term project with ease. | What time management skills does this child have? | Allow child to become involved in extracurriculars. Ask child to help plan family/school activities. |
| Keeps a neat and organized bedroom. | Is this carried over into other aspects of the child's life? | Ask child to help organise issues or needs at home. Assist child in transferring skills to other areas as needed. |
| Recognises different ways to solve the same problem. | Are the child's ideas more effective ways of solving a problem? Does the child see solutions in a different way? | Reinforce child's unique thinking. Ask child to explain steps used to solve a problem. |
| Sits and plays make believe games. | Do child's toys promote pretend play? Should I get involved during this play? | Acknowledge value of play Get involved in it. Introduce new scenarios to the play. |
| Draws pictures on sidewalk, scraps of paper, and in sand at beach. | Does the child have interests in drawing? How can I promote this interest? | Ask the child to draw something specific. Show examples of many kinds of drawing. Introduce different materials for drawing. |
| Dances around to music in his or her head. | Does the child enjoy moving to a beat? | Clear special place for movement. Play variety of music. See if child would like dance lessons. |
| Has fun playing with "any old stuff" around the house. | Is the child able to think about everyday objects in a different way? | Use questions to promote creative thinking about items. Ask, "Can you think of another use for...?" |
| Makes up stories about everyday things. | How can I encourage this creativity without being judgmental? How do I nurture original thinking? | Encourage child to create stories. Ask questions that force child to give more details. Encourage child to write down the stories. |

Adapted from Besnoy, 2006

Table 8. ORR Chart for Aesthetic and Social Domains

| Observation (A) Aesthetic or (S) Social Domain | Reflection (A) Aesthetic or (S) Social Domain | Response (A) Aesthetic or (S) Social Domain |
|--|--|---|
| Talks about beautiful sunsets, etc. | Does the child often comment about beauty in nature? Is the child observant? | Talk about colours, form, and composition in nature. Point out aesthetically pleasing things in the environment. |
| Recognises beauty in art and architecture. | Does child observe the environment for things of beauty? | Take child to art galleries, museums. Take art books out of the library for the child. Take a city architecture tour. |
| Is always listening to music. | What is it about the music the child appreciates? What kind of music does the child like to listen to? | Take child to concerts. Share personal music library with the child. |
| Sits by aging relative and cuddles for a long time. Is solicitous to older adults. Has good friends. | Does the child think about others' needs first? | Let the child know that affection shown to others is important. |
| | How does the child attract good friends? Does the child prefer fewer good friends rather than many? | Create play dates for child. Talk about value of friendship. Read books about friendship. |
| Enjoys listening to and telling family stories. | Is the child family oriented? What encourages the child's interest in family? | Arrange family get-togethers and school events. Write family stories into a book. |
| Leads others. | What leadership qualities does the child have? | Allow child to take the lead with family or friends in weekend activity. Enrol child in leadership activities. |

Adapted from Besnoy, 2006.

Strategy 7: Use gifted/talented peers or “buddies” to model appropriate skills in the classroom, playground, and during transitions.

Probably the biggest life saver for a teacher faced with a severely twice exceptional child will be finding a “peer” for this child to help out when the teacher (or parent) have other things that need doing. Often the buddy can sit near to the 2e student and just by doing the tasks assigned can provide a good role model of how to proceed as well as what needs to be done. It is important, that the chosen “buddy”, however, be happy to do this; otherwise, we may be exploiting the good nature of or not addressing the gifted needs of the buddy in this process. The act of being a buddy should not preclude having one's own educational needs addressed. In Project 2Excel we have found this of extraordinary value for gifted learners who also present with ADHD and ASD, in particular.

Strategy 8: Provide alternative means for assessing the achievement of curriculum outcomes for the child with twice exceptionality.

What has been particularly helpful in our project has been having the teachers share a possible list of alternative ways to be assessed and letting the child choose the options he or she feels will show off his success most readily. Some of the ideas that

have worked successfully, come from special education resources and some are idiosyncratically “gifted” in nature. Added time for reading, test taking, as well as being able to show what has been learned in a more verbal or visual medium have all worked well. One of our true success stories this year involved a young boy who had difficulty (in Year 4) with handwriting even on wide-lined paper. His writing was slow, illegible, and for him, very frustrating because he would forget his ideas before he could get them down on paper. For an end-of-the-year biographical research project in the class, he chose to study Bobby McFerrin, the singer who uses his voice in very unusual ways. His teacher permitted him to create a 12-minute film, completely scripted by him (using Word Prediction software for the writing part), edited by him, and which included his voiceovers, uploaded photos, and live videos of McFerrin. This teacher realised that the child had truly shown what he could “write” when the physical act of handwriting did not have to be involved and the final product was worthy of a young adult, rather than a Year 4 student! In looking at this alternative means, both special education accommodations were used (word prediction software) as well as gifted strategies (transformational products in nontraditional media).

Strategy 9: Divide longer term projects assigned into small pieces with steps the 2e child can check off.

Organisers such as webs (Inspiration), electronic organisers (the whole gamut of graphic organisers), study guides, electronic calendars/reminders, multiple modality access to content and assignment descriptions can be used as reminders for the child of what has to be done and by when. This strategy requires the teacher to be much more sequential than simultaneous in presenting longer-term project expectations, but it will end up with the project actually completed rather than never turned in.

Strategy 10: Work directly and collaboratively with the child to design rubrics on how the work will be assessed.

This strategy has been separated from the eighth strategy so that the importance of assessment is NOT incorporated into a single strategy in the list. The more control the twice exceptional children feel they have over being successful in showing what they can do, the more likely we are to see what they can do. This also helps with developing a sense of self-efficacy, which can often be damaged when these children see when they are not succeeding as their classmates are. Samantha Abeel’s telling memoir, *My thirteenth winter*, describes this issue extremely well. Abeel is a twice exceptional learner with severe dyscalculia and an inability to tell time or plan how to manage time on her own and we are able to watch how she slowly descends into anxiety, self-loathing, and dependency as she progresses from kindergarten to year 7, when her disability is finally documented and she begins to understand what has gone “wrong” for her.

Strategy 11: Reinforce all instructions and expectations directly with the child, asking him or her to sequence the activities after the lesson or event.

This one-on-one follow-up is crucial to the child’s actually knowing what has to be done, by when, and how. Even when the teacher has presented the “task” or assignment in a multi-modal way (Smart Board, oral), the individual, “do you understand what you need to do” follow-up will ascertain for both you and the child that he or she can proceed.

Strategy 12: Consider adjustments in time for project deadlines, test taking, and reading of material.

Research was recently reported that when children with disabilities of various kinds are allowed 'extra time', it is rare that they take the full allotment of extra time they are given. In many cases, they take the same amount of time given to all students in a class, but their anxiety and stress levels are reportedly much alleviated by this possibility. It seems to be critical that the twice exceptional child begins on an assignment or task feeling they can "do" it and with appropriate progress monitoring we will know whether or not more time might be needed in order for them to succeed. It goes without saying, however, that adjustments in outcomes (eliminating all the "would be nice" ones and sticking to the minimum essential ones) is also helpful.

Strategy 12: Provide direct memory training, plus associative, mnemonic, and environmental cues and prompts to build working memory.

One teacher in our project this past year, had a white board that identified the major activities of the day and when each would occur (along with a clock on her television screen that showed the actual time, minutes to go, etc.). She also had an individual note for the twice exceptional student to put in his work folder for the day with space to check off as each activity took place. She also reviewed the activities orally with the entire class at the beginning of the day, as well as announcing when it was getting close to a transition to the next activity. These environmental cues were extremely effective, even though they presented her with additional work each day. (They probably also encouraged her to stay "on task" herself so as not to vary the activity schedule too much with her more anxious and inattentive students. She had 8 twice exceptional learners in her single self-contained gifted classroom!). The other strategy included her deals with the issues of holding information in working memory so that it can be manipulated. There are hundreds of ways to "work on" working memory, many of them visual for those with visual strengths, many of them auditory for those with auditory strengths, as well as strategies that incorporate kinesthetic or tactile experiences. It is currently unclear about whether we can "teach" for working memory, but even if we cannot, we can provide possible avenues that may help a child with memory deficits to have a chance to be more successful.

Much of our work in the next four years of this project will focus on validating the efficacy of these preliminary understandings of how to find and serve children with twice exceptionalities. What has been shared here are common practices that worked in this first actual year of implementation. What we have basically learned is that the most important strategy of all is to focus on the individual child through his or her strengths, passions, and personal characteristics that make him or her a 'good' learner. Once we see what those strengths are, we must identify strategies that complement those strengths in helping to overcome skill gaps, in whatever domain they may lie. Most of all, we need to remember that these children, although very gifted, will always have to work harder than their intellectual peers. This means we must start early to focus on the value of hard work and putting forth effort – a good lesson, I think, for ALL children with gifts and talents!

Grappling With the Effects of Attachment: A Gifted Model for Dual Exceptionality

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Gifted children have often been described as being “out-of-sync” with chronologically same-aged peers and societal expectations (Silverman, 1997, p. 39), and giftedness has been linked to particular characteristics, such as an ability to learn rapidly (Rogers & Silverman, 1997) and high IQ (Winner, 1998). High IQ has also been associated with secure attachment (Van Ijzendoorn & Van Vliet-Visser, 1988), and secure attachment is linked to good socio-emotional adjustment, and positive developmental outcomes (Prior & Glaser, 2006).

However, not all children with high IQ are securely attached (Karrass, & Braungart-Rieker, 2004; Van Ijzendoorn & Van Vliet-Visser, 1988). Although the consequences of insecure attachment may well have an impact on various aspects of their lives, including on their level of achievement, there is a dearth of research on the connection between giftedness and attachment. This may be explained by the long-held assumption that the problems of gifted children are a by-product of giftedness (Silverman, 1997; 1998). More recently, an article raised the possibility that these problems may instead stem from adverse early social and emotional environments, which can be assessed through attachment patterns (Wellisch, 2010).

In this chapter we present a brief review of available information, and argue that attachment may contribute to some gifted children being out-of-sync. Attachment-related cognitive and socio-emotional problems may also cause learning barriers. It will be argued here that although learning is affected, educational support and intervention may be inadequate in the case of attachment-related problems. Schools should therefore take a leadership role in the coordination of alternative interventions to ensure that children can be helped to overcome such learning barriers. Finally, a case will be made for the necessity of an inclusive model for gifted education that also addresses the needs of these gifted children. First, however, asynchrony will be examined, followed by a brief overview of attachment, and its possible impact on giftedness.

Asynchrony

The construct of asynchrony was conceived in response to a general shift away from the concept of giftedness to the more achievement-oriented and supposedly equitable development of “talent” (Morelock, 1992). Silverman (1997) argued that the poor

social fit of gifted children was due to a less mature but highly sensitive emotional system. She saw gifted children as cognitively complex and emotionally intense, functioning at various developmental ages — for example, with the mental age of a 14-year old, and a chronological age of an 8-year old.

According to Silverman (1998), the most asynchronous of all gifted children are gifted children with learning disabilities. Lovett and Lewandowski (2006) have suggested that a child with a learning disability (LD) who is also gifted can be identified if “ability [is]...substantially above average and...his or her achievement is substantially below average *when compared to peers of the same age*” (p. 524), recommending assessment “using IQ scores and absolute low achievement” (p. 525). The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) provides a similar definition and recommendation for assessment, adding that assessment and comparison with peers should be considered in conjunction with “age-appropriate education” (American Psychiatric Association, 2000, p. 39).

Various learning disabilities are thought to be due to particular executive function problems, such as working memory deficits (Alloway & Gathercole, 2006; Pickering, 2006; Swanson & Siegel, 2001), associated with the prefrontal cortex. Brain research has demonstrated the activation of the prefrontal cortex during IQ tests, and the magnitude of activation has been tied to intelligence (Chabris & Braver as cited in Shaw et al., 2005; Flynn, 2007).

Perry (2006), a neuropsychologist and psychiatrist, also described children who are characterised by uneven development in a number of areas, who have learning disabilities and developmental delays, and who are not usually associated with the gifted population. Most of these children develop an insecure attachment pattern (also referred to as attachment style), described later in the chapter. The outcomes of insecure attachment are remarkably similar to many of the characteristics associated with gifted and learning disabled children, including deficits in attention, and poor behaviour regulation (Perry, 2002). It is argued that there may be an overlap of these two populations, and the current research described later in this chapter was designed to test this hypothesis.

Attachment

The meaning of attachment in Bowlby's attachment theory (Bowlby, 1969) is different from everyday use of the term. According to Bowlby, attachment does not refer to a reciprocal love or affection relationship, but rather to a tie formed between a baby and its principal attachment figure (usually the mother), based on the baby's instinctual need for safety, security, and protection (Prior & Glaser, 2006). Bowlby noted that babies and young children displayed a strong need for seeking out their mothers when they felt threatened or uncomfortable. Such proximity-seeking behaviour was reciprocated by a response that, over time, develops into either a secure or an insecure attachment pattern. The pattern of attachment becomes the child's internal working model of self and others, based on the care he or she has experienced.

A review conducted by Prior and Glaser (2006) indicates that attachment patterns are relatively stable over the lifespan, although changes can follow therapy or traumatic events. The attachment pattern acquired through interaction with the mother is later applied to interactions with others, including friends, and romantic love relationships.

Attachment patterns

A tripartite classification of *secure*, *anxious* (also called ambivalent), and *avoidant* attachment was originally based on babies' reactions to stress-related experiences such as their mothers leaving, and to strangers entering the observation room in a laboratory setting (Ainsworth, Blehar, Waters, & Wall, 1978). These findings have stood the test of time through many replications of Ainsworth et al's research.

Mothers of secure-attachment children are thought to be consistently sensitive and responsive, and their babies have been found to be advanced, for example, in language skills (Van IJzendoorn, Dijkstra, & Buss, 1995). Conversely, insecure attachment, comprised of anxious and avoidant attachment, is associated with ongoing emotional and behavioural problems (Prior & Glaser, 2006). Prior and Glaser concluded after reviewing research on attachment that the "distribution of patterns is remarkably consistent across different cultures with the majority (approximately 65 per cent) being secure" (p. 36).

Attachment and giftedness

Experts from a variety of fields have speculated that intelligence may be a protective factor, for example in relation to maternal depression (Johnson and Flake, 2007), and that it may accelerate recovery from earlier poor care-taking (Perry & Szalavitz, 2006). Speculation has also included the notion that gifted children (sometimes referred to as intelligent children) actively co-create their environment (Perry & Szalavitz, 2006; Sternberg, 2005; Van IJzendoorn, Dijkstra, & Bus, 1995; Winner, 2000). The vehicle through which they do this is their often very special relationships with significant others to satisfy their driving need for information (Cigman, 2006).

There is general agreement that excellent verbal ability is an identifying characteristic of many gifted children (Clark, 2008; Frasier & Passow, 1994; Liu, Hui, Lien, Kafka & Stein, 2005; Rogers & Silverman, 1997), similarly to the securely attached. However, there is little agreement on the social adjustment of gifted children, with some findings indicating that they are well balanced, while other findings conclude that they do have adjustment problems, for example, during the teenage years (Csikszentmihalyi et al., cited in Winner, 2000).

Silverman (2002) has described a subpopulation of gifted children with LD and Attention Deficit Hyperactivity Disorder (ADHD). She has also observed that they frequently have an IQ profile of a higher performance score in comparison to their verbal score. Perry (2001) reported similar observations, including the same IQ profile, in children who had been abused or had in other ways encountered trauma. This population was also frequently diagnosed with socio-emotional and learning related problems, such as ADHD (Perry, Pollard, Blakely, Baker, & Vigilante, 1995), and had an increased probability of being insecurely attached (Van IJzendoorn et al. as cited in Prior & Glaser, 2006).

To sum up, there appears to be similarity between children who are abused and neglected and a particular portion of the gifted population who have socio-emotional problems, LD, and a particular IQ profile. There are many forms of giftedness, however, such as musical or artistic giftedness, and it may well be the case that certain forms of giftedness are more likely to be related to problems than others. For example, Jamison's and Ludwig's findings (as cited in Winner, 2000) indicate that bipolar disorder is associated with creativity. Although there are many forms of giftedness, the research described later has chosen to focus on intellectual giftedness, which is relatively easy to assess and identify. Identification is generally made by using multiple sources of information (VanTassel-Baska, 2000). One of these sources, the IQ test, is considered a reliable predictor of school achievement (Deary, Strand, Smith, & Fernandes, 2007).

Review of the literature

Only two studies with opposing findings make up the available research on attachment and higher IQ. The first is an older Dutch study of 65 middle-class toddlers (Van Ijzendoorn & Van Vliet-Visser, 1988). The children's attachment patterns were first observed when they were toddlers, and by the time they reached Kindergarten age it was found that the securely attached had the highest IQ ($M=116$). As IQ scores of the anxiously attached were only slightly lower ($M=112$), the authors concluded that anxious attachment had not hampered cognitive development as much as they had hypothesised. Karrass and Braungart-Rieker (2004) carried out a more recent American study with a sample of 63 middle-class infants and found the opposite, namely that insecurely attached 3-year olds had the higher IQs (the mean was not provided).

There were many differences between the two studies. The IQ measure used by Van Ijzendoorn and Van Vliet-Visser, administered to school aged children ($M=64$ months), was the standardised Dutch Leiden Diagnostic Test, whereas Karrass and Braungart-Rieker administered the Stanford-Binet Fourth Edition (SB-IV) to 36-months olds, an age when IQ may still be unstable, with "the ideal age for testing...between 5 and 8½ years" (Silverman, 2010). Further, as Karrass and Braungart-Rieker combined anxious and avoidant attachment, a direct comparison cannot be made between the two findings. Since research on attachment and giftedness was scarce, the literature review was expanded to include areas such as brain research and maternal depression to help clarify the relationship between attachment patterns and gifted children who were 'out-of-sync'.

Attachment and the Current Gifted Model Used in Australia

As the gifted literature has not considered attachment as an essential factor in the development of intellectual giftedness (or any other form of giftedness), it is understandable that its role is not reflected in the current model used in Australia, the Differentiated Model of Giftedness and Talent (DMGT) (Gagné, 1985). It is outside the scope of this chapter to thoroughly review the DMTG, however, the model is

aimed at children who can achieve in the top 10% (Gagné, 2008), a clear disadvantage for children with attachment-related problems who are gifted, and underachieving.

In his debut article for the model, Gagné (1985) reviewed and critiqued Renzulli's redefinition of giftedness, which comprised a greater than average ability, creativity, and motivation. He pointed out a flaw, namely that gifted underachievers, who are often characterised by socio-emotional, and motivation problems (Commonwealth of Australia, 2000), would be unable to benefit from such a definition, as they lacked motivation. Gagné (1985) then made a point of differentiating his model from Renzulli's definition by including underachievers in his model, defining them as "gifted...without having manifested...giftedness in any academic talent" (p. 12).

Although Gagné continues to acknowledge the phenomenon of "academic underachievement" (Gagné, 2008, p. 6), he now states very clearly that the DMGT is "a talent-development model. It is NOT [author's capitals] a model representing a person's total personal development" (2008, p. 4). This view can be further detected in Gagné's (2010) latest article, yet to be published, where he distances himself from the frequent use of the term 'gifted', replacing it with his new term, 'talentee' (Gagné, 2009, p. 2). He now argues that "being bright is rarely sufficient to deserve the gifted label; students must also show high academic performance" (n.p.), adding that if a child has been identified for talent development and his or her pace slows, "teachers might reconsider a student's talentee status" (Gagné, 2010). This suggestion, together with his previous observation that giftedness should be demonstrated through performance, leaves little room for underachievers.

Additionally, the DMGT's only offering is through educative means, measures of progress, and the quality of effort and investment. This limited approach to some gifted children's needs leaves them without alternative intervention, and as their needs are not addressed in the DMGT, also without a legitimate claim for such intervention. A socio-emotional component for an inclusive gifted spectrum model is therefore proposed later in this chapter. It is argued that learning barriers are the business of educational institutions regardless of their underlying cause, although the causes should be identified so that appropriate intervention can be used. For example, if the learning barrier is caused by attachment problems, it must be addressed through appropriate evidence-based attachment-related interventions so that these gifted children can eventually be supported towards achievement.

Possible New Treatments

As attachment-related problems have not previously been considered in relation to gifted children's socio-emotional needs, teachers and parents have had to find their own way through an array of possible diagnoses and treatments, each claiming to address learning disabilities or socio-emotional problems, although none may specifically address issues arising from insecure attachment.

Helpful therapies do exist. For example, there are promising new programs being developed for children with attachment problems that aim to address early damage,

including massage, music, and other therapies (Perry, 2006). Evidence-based programs and therapies include Triple-P Parenting for parents of gifted children (Morawska & Sanders, 2009), Trauma-Focused Cognitive Behavior Therapy (Cohen, Mannarino, Berliner, & Deblinger, 2000), and Eye Movement Desensitisation and Reprocessing (EMDR) (Bisson & Andrew, 2007). Findings also indicate that children's diagnoses and symptoms can be reduced when their mothers received medication for maternal depression (Foster, et al., 2008; Weissman, et al., 2006). These interventions may lead to greater self-confidence, and increased motivation to achieve in insecurely attached gifted children who have attachment-related disorders.

The Current Study

The first hypothesis was that cognitive development, socio-emotional adjustment and LD are all related to attachment patterns in gifted children. The second hypothesis was that gifted children would be more likely to be securely attached, bearing in mind the notion that intelligence may be a protective factor. The third hypothesis was that the particular IQ profile of higher Perceptual Reasoning scores compared with Verbal Comprehension scores will correlate with LDs and socio-emotional problems, as reported by Silverman, as well as with anxious or avoidant attachment, similarly to Perry's population.

Participants

Recruitment was targeted at 7-10 year-old children (N=49) who had already completed a WISC-IV IQ assessment within the previous 18 months, and whose full scale IQ (FSIQ) was ≥ 80 . These children and their parents were recruited from three sources catering for mainly middle-class families: the Indigo Assessment & Counselling organisation in New Zealand, a clinic specialising in gifted children; the Macquarie University Rod Power Psychology Clinic, a clinic open to the general public; and the NSW Association for Gifted and Talented Children, whose members are mainly parents and teachers of gifted children. As recruitment is ongoing, only current findings are reported here.

Materials

Background questionnaire

A general background questionnaire for both mothers and fathers included perception of ease of attachment to their child, whether they or their child had any learning disabilities, and questions about socio-economic status, for example, highest qualification, job title, and family income. Maternal depression is a factor in insecure attachment, and mothers were therefore also asked whether they had been diagnosed with maternal depression after the birth of their child.

As 15 fathers did not participate in the research, mothers' data were used for analysis presented here. Current data indicate that 74% of the mothers had at least a Bachelor degree qualification, confirming that the population was middle-class. This was further supported by family income, where there was a choice of six levels, ranging from 1 (low) to 6 (high), with 82% reporting earnings in the two highest income brackets (levels 5 and 6). As mentioned above, data on LD were collected in the general background questionnaire. Parents were asked "does your child have a

diagnosed learning disability”, and if affirmative, to circle one or more of the following: speech, spelling, reading, mathematics and handwriting.

Cognitive ability and intellectual giftedness

A Wechsler Intelligence Scale for Children (4th ed.) (WISC-IV) (Wechsler, 2003) was used by the children’s psychologists to assess cognitive ability. For research purposes an IQ of ≥ 120 was adopted as a gifted score, based on Gagné’s (2004; 2005) metric system of gifted levels, which listed mild giftedness as a FSIQ of 120. Other studies also often use an IQ of ≥ 120 as a measure of high IQ (Antshel, et al., 2007; Antshel, et al., 2008), and Antshel et al. (2007) operationalised both giftedness and high IQ at ≥ 120 . Both subtest index scores and full scale scores of ≥ 120 were used as measures of giftedness, as full scale scores alone may not reflect the frequently discrepant scores of many gifted children (Munro, 2002; Silverman, 2002). This strategy would also ensure the inclusion of “those academically talented students whose relative weakness in one domain reduces their composite score below the established cutoff for admission” (Lohman, Gambrell, & Lakin, 2008, p. 270). Additionally, it has long been standard practice to interpret IQ scores at both levels (Kaufman, 1979).

The verbal and performance scores are no longer available in the latest WISC-IV. They have been replaced by the new Verbal Comprehension and Perceptual Reasoning indices with some changes, for example, Perceptual Reasoning relies less on speed and has greater incorporation of fluid reasoning (Niolon, 2005). The higher Perceptual Reasoning combined with a lower Verbal Comprehension IQ profile was tested by using only profiles where Perceptual Reasoning scores were ≥ 10 points higher than Verbal Comprehension scores.

Ten WISC-IV subtests are required to be administered to assess general cognitive abilities through the following four indexes: the Verbal Comprehension Index, designed to measure verbal reasoning and concept formation; the Perceptual Reasoning Index, designed to measure fluid reasoning in the perceptual domain with tasks that assess nonverbal concept formation, visual perception and organisation, simultaneous processing, visual-motor coordination, learning, and the ability to separate figure and ground in visual stimuli; the Working Memory Index, designed to measure attention, concentration, mental control; and Processing Speed, designed to measure speed in processing simple or routine visual material without making errors.

Higher Perceptual Reasoning/lower Verbal Comprehension profile

Much controversy has surrounded the practice of examining specific subtest clusters of tests in order to identify underlying disorders, a practice also known as profile analysis, for example the higher performance combined with lower verbal IQ profile noted earlier by Silverman, and Perry. The controversy has arisen due to divergent findings, causing Lovett and Lewandowski (2006) to call for a stop to profile analysis of gifted children until there is evidence that it can be used reliably. The inclusion of the IQ profile in the current research aims to address this research need.

Child’s attachment measure

Children’s attachment to their parents is eventually superseded by ties to peers and romantic relationships. Whereas there are a number of attachment assessment tools

for younger children, there was a gap in an assessment tool for school-aged children until Finzi, Har-Even, Weizman, Tyano and Shnit (1996) published an adaptation of Hazan and Shaver's (1987) Hebrew adult questionnaire, based on Aisworth et al's (1978) patterns of attachment. This questionnaire, the Attachment Style Classification Questionnaire for Latency Age Children (ASCQ), was later translated to English. The 15-item Likert-type ASCQ questionnaire was used for its brevity, its design for use with the target age group, and for its reported reliability, although an adjustment was made in the language of a few items to make the items simpler (items 3, 9, and 14). For example, item 3 was changed from "It is easy for me to depend on others, if they are good friends of mine" to "It is easy for me to depend on my good friends".

Child's emotional and behavioural measure (CBCL)

The socio-emotional adjustment of children was measured with Pages 3 and 4 of the Child Behavior Checklist for Ages 6-18 (CBCL) (Achenbach & Rescorla, 2001) completed by children's parents. The CBCL is designed to obtain data on children's behavioural and emotional problems and competencies. Pages 3 and 4 contain a 113-item Likert-style questionnaire with responses ranging from "Not true" (=0) to "Often true" (=2). An example of an item is "Would rather be alone than with others".

Procedure

New Zealand parents were invited to join the research when they made an appointment with Indigo Assessment & Counselling clinic for their child to be assessed. Those who chose to take up the offer were handed questionnaires, their child was administered the ASCQ during the assessment, and all data were posted to the researcher. In Australia, the Rod Power Psychology Clinic provided the IQ and CBCL data to the researcher, who administered the ASCQ to each child. Questionnaires were posted to participants recruited through the NSW Association for Gifted and Talented Children. The ASCQ was administered to each child when these questionnaires were collected, and children's individual psychologists provided the WISC-IV data by post.

Preliminary Results

As mentioned, Prior and Glaser's review found that approximately 65% of the population was securely attached. This was borne out by the current study, with 33 child participants (66%) securely attached. However, of children who had at least one ≥ 120 IQ ($n=25$), more than 82% were securely attached, and only one child was classified as avoidant.

Maternal depression, which has been associated with insecure attachment, may have been underreported, as only 8% of the mother participants reported such a diagnosis, a figure that does not reflect the Australian data of 16% for postnatal depression (Buist & Bliszta, 2006). It may well be that depressed mothers had not been formally diagnosed, and that option was not included as a question. In all cases where mothers had reported postnatal depression, their children had a secure pattern, regardless of IQ.

Although there was a spread of FSIQs, the deliberate recruitment of gifted child participants was reflected in the large population (28%) of participants with a FSIQ ≥ 120 , compared with 9% in the average population. In this study, Perceptual Reasoning scores were higher than Verbal Comprehension scores in 76% of the participants. Of these, 72% had at least one score of 120 or above.

A total of 14% of mothers reported that their children had learning disabilities, compared to a recent NSW study involving 14,500 primary and high school children, which found that between 17.9% and 19.1% children had specific learning difficulties (McLeod & McKinnon, 2007). No recent New Zealand data was found. As with maternal depression, this item may also have been underreported for similar reasons as above.

IQ, LD and Attachment

The first hypothesis, that cognitive development, socio-emotional adjustment, and LD are all related to attachment patterns in gifted children is only partially supported by the findings. Cognitive development was found to be associated with attachment, discussed below, although no correlations were found between attachment, socio-emotional adjustment, and LD. However, 8 of the 17 participants who scored at least 3 points higher in Perceptual Reasoning than in Verbal Comprehension, and who also had at least one IQ score of ≥ 120 , had internalising and externalising problems in the clinical range.

The second hypothesis, that gifted children would be more likely to be securely attached, appears to be supported. An independent groups t-test indicated that children whose full-scale IQ was ≥ 120 had significantly higher secure attachment scores at the $< .05$ level (3.8 compared to 3.4; $t=2.3$, $p=.03$), and significantly lower avoidant attachment scores (2.0 compared to 2.5; $t=2.5$, $p=.04$) than those with IQ scores < 120 . The two IQ groups did not differ with regard to anxious attachment scores.

A different look at all IQ scores showed that secure attachment was positively correlated with all indices and FSIQ scores, while avoidant scores were negatively correlated, and significantly so (at the .05 level), with Perceptual Reasoning, Working Memory and FSIQ (see Table 1).

Table 1. Correlations Between Secure, Anxious, and Avoidant Attachment and IQ Scores

| IQ Scores | Attachment Patterns | | |
|----------------------|---------------------|----------------|-----------------|
| | Secure (n=48) | Anxious (n=49) | Avoidant (n=48) |
| Verbal Comprehension | .13 | -.05 | -.18 |
| Perceptual Reasoning | .16 | -.06 | -.32* |
| Working Memory | .14 | .03 | -.30* |
| Processing Speed | .18 | -.06 | -.11 |
| Full Scale IQ | .19 | -.04 | -.28* |

* $p < .05$

IQ profile, LD, socio-emotional adjustment, and attachment

The third hypothesis was that the IQ profile of higher Perceptual Reasoning scores compared with Verbal Comprehension scores would correlate with LDs and socio-emotional problems, and this hypothesis was only partly supported. As mentioned, no correlation was found between LD, socio-emotional problems, and attachment, nor did any of these correlate with the ≥ 10 points higher Perceptual Reasoning than Verbal Comprehension score IQ profile. However, although children with at least one index score of 120IQ were less likely to have LD (21%) compared with other children (52%), a crosstabs analysis showed that children with ≥ 10 points higher Perceptual Reasoning than their Verbal Comprehension scores were more likely to have at least one LD than other children, particularly in spelling (see Table 2). No significant differences were found for speech, reading, mathematics and handwriting, however, there was a trend in the same direction.

Table 2. Perceptual Reasoning-Verbal Comprehension Discrepancy and Learning Disabilities (LD)

| Discrepancy Category | Learning Disabilities | |
|---|--------------------------------|-----------------------------|
| | One or more LD (<i>n</i> =18) | Spelling LD (<i>n</i> =13) |
| Perceptual Reasoning 10 points higher than Verbal Comprehension (<i>n</i> =13) | 53.8% | 46.2% |
| Perceptual Reasoning NOT higher than Verbal Comprehension (<i>n</i> =36) | 30.6% | 13.9% |

Note: LD = Learning Disability

Discussion

Overall, attachment appears to be associated with IQ, although there were no effects for anxious attachment. Secure attachment increased with IQ, supporting Van Ijzendoorn and Van Vliet-Visser's (1988) earlier finding, and avoidant attachment was significantly associated with decrease in Perceptual Reasoning, Working Memory and FSIQ scores. This finding is further underscored by the relative absence of children who were both gifted and avoidant, with only one avoidant child in a population of 25 participants who had at least one score of ≥ 120 IQ. As mentioned, child participants were drawn from a clinical population, making this finding even more remarkable. The finding can also be interpreted as showing that avoidant attachment significantly reduced the likelihood of higher IQ in this middle-class population. The findings appear to support the aforementioned speculation of experts from a variety of fields that intelligence may be protective, although more in-depth exploration is required, for example, through parent interviews.

Another noteworthy finding was that children with at least one score of ≥ 120 IQ were much more likely to have an IQ profile with a higher Perceptual Reasoning score in

comparison with their Verbal Comprehension score. This IQ profile was also associated with more LDs, and externalising and internalising problems, supporting Silverman's (2002) observation that children seen in her clinic who are gifted may have a tendency towards this particular IQ profile, which was also associated with LDs, and other problems.

Caution should be applied to the interpretation of the current data due to the low number of participants. However, if the assumption is made that intelligence is a protective factor, it is then also possible that although gifted children who experience early trauma can more easily become securely attached, they may nevertheless have residual problems associated with these early experiences. First, they would be more likely, like Perry's population, to develop the higher Perceptual Reasoning combined with a lower Verbal Comprehension IQ profile, and in this study 72% of the participants with this IQ profile had at least one ≥ 120 IQ. Second, they would be more likely to develop socio-emotional problems, like Perry's abused and neglected children, and 47% of the participants with the same IQ profile had problems in the clinical range. It is therefore possible that gifted children who have experienced early trauma, perhaps as a result of maternal depression, are more likely to be securely attached with this particular IQ profile, however, further research is required to investigate these associations.

Limitations of the Study

Inherited intelligence is a potential confounding factor in the finding on the association between attachment and IQ. A limitation of this study is that parents' IQs were not collected, as was also the case for the two previous studies on IQ and attachment. Future studies need to ensure the collection of IQ data for both parents and children in order to settle the question about the true association between attachment and IQ.

Implications

Psychologists should be aware of possible LD in gifted children where a WISC-IV Perceptual Reasoning score is at least 10 points higher compared with their Verbal Comprehension score. The same IQ profile should also give rise to consideration of giftedness where there is at least one index score of ≥ 120 IQ.

Another implication is the need for an inclusive model, as the DMGT does not offer provision for the needs of those gifted children who may have attachment issues that in turn can prevent achievement.

An enabling component in a gifted model

A model of giftedness needs a component for children who are gifted but have learning barriers and lack motivation. These problems may arise as a result of insecure attachment or due to a loss in interest through boredom with the

curriculum, as may be the case for some non-identified gifted child. The importance of an alternative to educational strategies represented by a component in an education model has already been suggested by Adelman and Taylor (2000), who named it an “enabling component” (p. 17). Interestingly, they also identified some children with learning barriers as “avoidant” (p. 19).

The addition of such an enabling component in a gifted model would ensure that gifted children with learning barriers are included in gifted programs once they are identified, regardless of achievement. This option is currently unavailable under the DMGT.

The gifted identification process as practised by schools is the ideal time to simultaneously assess whether children also have learning barriers, and identification should be seen as a priority, due to the possible requirement for early intervention. In this process, children who are near the top of the class can be seen as ‘ready learners’. They may be gifted children who are also characterised by an “exceptional desire to achieve” (Cigman, 2006, p. 207). Ready learners can therefore move directly to the education/training component of a model such as the DMGT, and be provided with strategies as suggested by Gagné (2010). Learners with barriers, however, require appropriate and early socio-emotional and other interventions. Allowance should be made for the child to move between appropriate socio-emotional and educational provisions as long as this is needed (see Figure 1).

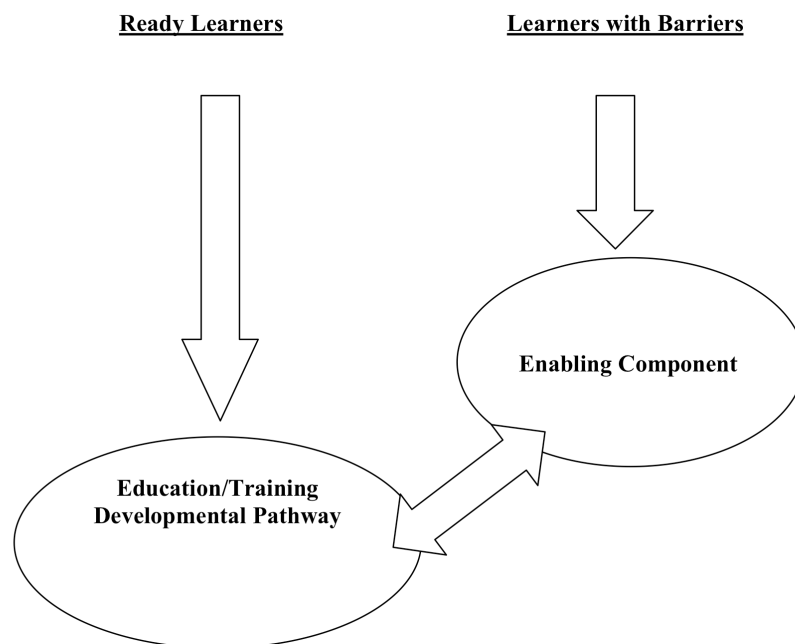


Figure 1. Education/talent development pathway via the gifted enabling component.

Cigman (2006) suggests that children with problems, here known as *learners with barriers*, may be identified as children whose IQ places them in the top 90+ percentiles or who appear to be unusually precocious, yet are not high achievers or may have learning and socio-emotional difficulties. There are “two ‘loose’ criteria or indicators” (p. 207) of children who may have potential for exceptional performance: children who may have “flashes of extraordinary insight...though...concentration and

output are poor. This sort of profile — occasional brilliance, unsteady concentration or performance — points to a worrying discrepancy between potential and actual ability which could have a social or emotional source” (p. 207). The other group of potentially gifted children, according to Cigman (2006), “are education-junkies, preferring to spend their free time at museums or with their heads in books than playing with their friends...without the ability to achieve highly” (p. 207), or whose achievements are erratic, depending on their interest or level of boredom with the set work at school.

These underachieving children may also need both educational and socio-emotional intervention through the enabling component, which, according to Adelman and Taylor (2000) should be seen as part of the school’s coordinating role. As already mentioned, *learners with barriers* can be supported through a variety of evidence-based interventions that can successfully address insecure attachment.

Summary and Conclusion

The preliminary findings of this study indicate that although a higher IQ appears to be a protective factor, a sizable proportion of the gifted children were insecurely attached. Findings also show that the more secure the attachment the higher the IQ, and that avoidant attachment is negatively associated with IQ scores. Additionally, a WISC-IV IQ profile of high Perceptual Reasoning in comparison with the Verbal Comprehension score may be a more frequent occurrence in children who are gifted, and this profile is more likely to be associated with at least one LD, reducing the probability of high achievement. An enabling component to address the learning barriers of gifted children therefore clearly needs to be part of any educational model for gifted children if we are serious about our aim to ensure that all children are supported in reaching their potential.

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Teachers' Knowledge of Gifted Learning Disabled Students in NSW

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Abstract

Little or no empirical research on gifted learning disabled students has been conducted in Australia. This research investigated the knowledge teachers in New South Wales, Australia had of these students. A mixed methods approach was adopted involving surveys and interviews of teachers from primary and secondary schools across all education sectors. The study focused on two issues: the teachers' knowledge of, and attitudes towards, these students; and, the educational programs they implemented for these students. Demographics from the survey highlighted the lack of postgraduate training by teachers in both gifted education and learning disabilities. The findings showed that schools are not able to identify these students and are not meeting their specific educational needs. The evidence suggested that schools exhibited inconsistent knowledge about these students, and demonstrated a lack of understanding of how these students are affected by what the teachers do in the classroom. For ease of reading, the abbreviation GLD is used instead of the phrase gifted with a learning disability.

Introduction

Gifted education in Australia has made considerable progress but there exists a subgroup of gifted students who have been overlooked. Students who are both gifted and have a learning disability present a paradox to the education community. GLD students are often not identified in either category as their giftedness may mask the disability and/or the student may be achieving at an appropriate grade for age level. On the other hand, the student's disability may be identified rather than the giftedness (Little, 2001).

Gifted students with a learning disability

One of the possible reasons for the lack of recognition of this population by teachers is the difficulty in defining it. Many definitions exist for both giftedness and learning disabilities but each is defined by the educational professionals involved with the individual groups. Professionals working with each group have failed to agree on a universal definition that recognises GLD students. Defining a student who is GLD would require elements from the definitions of both a gifted student, and a student

with learning disabilities. This would mean that a gifted student who has a learning disability may be defined as a student with natural abilities in the intellectual, creative, socioaffective or sensorimotor domains (Gagné's Differentiated Model of Giftedness and Talent [DMGT]), and yet at the same time have impairment in processes that are related to learning, thinking, remembering, or perceiving.

Baum, Owen and Dixon (1991) identified three subgroups of GLD students. The first group is students identified as gifted who have subtle learning difficulties, which become apparent as the level of work undertaken at school increases in difficulty. The second group is those who are not identified as gifted or having a learning disability, as they are achieving at a grade level. The third group is the students who are identified for their learning disability and are often placed in remedial programs.

The characteristics of a GLD student have been well documented and researched (Barton & Starnes, 1989; Baum & Owen, 1988; Brody & Mills, 1997; Hishinuma & Tadaki, 1998; Munro, 2002). Case study research has shown that GLD students demonstrated many of the characteristics of their gifted peers, but they were also recognised as a heterogeneous group with their own unique characteristics (Barton & Starnes, 1989; Baum, Emerick, & Herman, 1989; Yewchuk, 1983).

Over a period of time, GLD education has received increased attention in the area of developing and providing appropriate educational programming for these students (Baum, 1988; Bees, 1998; Hishinuma & Nishimura, 2000; Shevitz, Weinfeld, Jeweler, & Barnes-Robinson, 2003; Weinfeld, Barnes-Robinson, Jeweler, & Shevita, 2002), in addition to integration and teaching strategies (Baum, Cooper & Neu, 2001; Bisland, 2004). Successful programs for GLD students are programs that recognise a student's giftedness while at the same time recognising that they have learning disabilities and providing assistance in the development of strategies to overcome their learning disabilities (Barton & Starnes, 1989; Baum & Owen, 1988; Baum, Cooper & Neu, 2001; Bisland, 2004; Brody & Mills, 1997; Hishinuma & Tadaki, 1998; Munro, 2002).

Research Method

A mixed methods approach was used in this research in order to gain greater insight and understanding of teachers' and school counsellors' knowledge of, and attitudes to GLD students. Teachers and school counsellors were surveyed and subsequently interviewed. Teachers and school counsellors were surveyed using the Survey of Practices with Students of Varying Needs (SOP). Following analysis of the surveys, a small number of teachers were interviewed.

Participants

Staff at eleven schools participated in the research. The schools were selected from schools within a metropolitan New South Wales Department of Education and Training (NSW DET) School Education Area and included selective high schools, a school with opportunity classes in addition to mainstream classes, comprehensive high schools and mainstream primary schools. Students in selective high schools and opportunity classes have been identified as gifted and have gained entry through a

combination of testing and school grades. Comprehensive high schools and mainstream primary schools from Sydney's Catholic Education Office (CEO) and one independent Kindergarten to Year 12 school also participated in the research.

Eight teachers and school counsellors were interviewed after collection of the surveys. The interviewees represented a cross-section of teachers across all education systems (government, Catholic, independent), school types (primary and secondary schools, selective schools) and included a gender balance.

Instrument

The SOP was used to assess teachers' knowledge of, and attitude to, gifted and learning disabled students (Tomlinson, Callahan, Moon, Tomchin, Landrum, Imbeau, Hunsaker & Eiss, 1995). It also provided an indication of teachers' confidence at meeting these students' educational needs and the different strategies they could implement in order to do so.

The SOP consisted of four parts. Part I addressed the knowledge and attitudes of teachers towards gifted learners and struggling learners. In Part II of the SOP, teachers were asked to reflect and rank, from one to three, the amount of time and attention they gave to the groups of average, learning disabled and gifted students respectively.

Part III asked respondents to rate on a scale, ranging from no confidence to very confident, their ability to:

- adapt their lessons to meet the needs of gifted and remedial learners;
- accommodate varying levels of ability in their class;
- assess where students were and designing appropriate lessons;
- individualise instruction to meet the needs of gifted and remedial learners;
- and,
- identify gifted and remedial students.

In Part IV, respondents were asked to nominate which of 14 specific techniques, activities or instructional strategies they thought they would use in the classroom with average, gifted and special education students.

Data analysis

For the demographics, the frequencies and percentages of participants' responses were calculated for the variables of: age; whether the school had provisions for gifted students or learning disabled students; whether the respondent had responsibility for gifted students or learning disabled students; and whether formal study had been completed by the teacher in gifted or special education. Data for gifted and learning disabled provisions, responsibility for gifted or learning disabled students and formal study in the field of gifted or special education were separated into two groups – one including, and another excluding selective high schools.

Each of the four parts of the survey were analysed separately. A gifted subscale and a learning disability subscale were formed from the 35 items in Part I. Means and standard deviations for each item in the two sub-scales were calculated. A two-way

between-groups analysis of variance (ANOVA) was conducted to explore the impact, if any, that the age of the teachers and their work environment – selective high schools versus mainstream schools — had on teachers' and school counsellors' knowledge of, and attitudes to, gifted students and students with learning disabilities. A one-way ANOVA was conducted to compare the gifted sub-scale scores for teachers who had formal training in gifted education and teachers who had no formal training in gifted education. Similarly a one-way ANOVA was conducted to compare the effect of having formal training in learning disabilities. Percentage rankings were calculated for Part II of the survey, means and standard deviations for Part III and percentages and rankings for Part IV.

Results

One subject in gifted education had been studied at the undergraduate level by 9.2% of teachers. This is in direct contrast to undergraduate study in learning disabilities, where 20.6% of teachers had studied a subject related to learning difficulties in their undergraduate degree. Two teachers had undertaken a gifted subject, and one teacher a learning disabilities subject in their Master of Special Education degree. The majority of teachers, including those from selective high schools, had no formal training in either gifted education or learning disabilities.

When excluding selective high school data, the full-time provision in mainstream and comprehensive schools for gifted students was half that for students with learning disabilities. In mainstream and comprehensive schools, the main provision for gifted students was part-time provision, enrichment, and extension work or withdrawal programs.

Teachers were asked to indicate whether they held a position of responsibility for gifted or learning disabled students. When eliminating selective high school responses, the most common response was that the participants had no responsibility for gifted or learning disabled students.

A greater number of teachers, when including selective high school data, had no training in gifted education than when selective high schools data are excluded. This pattern also held true for qualifications in learning disabilities. Additionally, a greater percentage of non-selective high school teachers have postgraduate qualifications or additional training in gifted education. Teachers teaching in a specialist high school for gifted students had fewer qualifications than those who were not teaching in a selective high school. This is a real concern as the expectation would be that as selective high schools are specialist schools educating students who have been identified as gifted, the teachers should have a greater rate of training in gifted education.

A one-way ANOVA was conducted to compare the gifted scale scores for teachers who had formal training in gifted education and teachers who had no formal training in gifted education. There was a significant difference in scores for teachers who had formal training in gifted education as compared to teachers who had no formal training in gifted education ($F=8.150$, $p < .005$). Similarly a one-way ANOVA was

conducted to compare the effect of formal training in learning disabilities. No significant effect was found for teachers who were trained in learning difficulties.

The data demonstrated that a greater percentage of schools do not have full-time gifted provisions but rather provide for these students on a part-time basis and by implementing enrichment, extension and withdrawal programs. Additionally, when selective high school data are excluded, most schools do not have a person responsible for either gifted provisions or learning disabilities.

From Part I of the SOP a gifted learner's and a struggling learner's subscale were formed. These subscales assessed knowledge and attitudes of teachers and school counsellors towards gifted and learning disabled. Analysis of results showed that teachers' knowledge of, and attitudes to, gifted learners were positive and demonstrated that they had some awareness of gifted education. In contrast, teachers' attitudes to struggling learners were ambivalent.

In Part II of the SOP, teachers were asked to rank from one to three the amount of time and attention they gave to the groups of learning disabled, average and gifted students with one being the greatest amount of time and attention, and three the least amount of time. Teachers responded in the following ways:

- 39.4% ranked average students as number one;
- 32.8% ranked special education students as number one;
- 8.6% ranked gifted as number one; and,
- 22.9% stated they spent an equal amount of time with each group.

These results demonstrated that the greatest percentage of teachers is teaching to the middle and lower levels of the class. Excluding selective high school data decreased the percentage of teachers who ranked gifted students at number one and increased the number who ranked them at number three.

In Part III response options ranged from 1 (no confidence) to 5 (most confident). Teachers' responses indicated that they felt some confidence about accommodating various levels of ability, assessing where students are at, designing appropriate lessons, identifying remedial learners and adapting lessons to meet the needs of gifted learners. For the remaining items, teachers did not express strong feelings either way. These results conflicted with the results for Part I of the survey. Teachers had a positive attitude towards gifted students yet they did not feel confident at individualising instruction or even identifying gifted students. Teachers' ranking of confidence levels with respect to remedial learners is in line with their ambivalent attitude towards these students except with respect to identifying these students with which they have indicated some confidence. These results represented substantial conflict with teachers noting that they accommodated various levels of students in their classroom yet they were not confident in individualising instruction for gifted and remedial students.

In Part IV, respondents were asked to nominate which of 14 specific techniques, activities or instructional strategies they would consider using in the classroom with gifted, average and special education students.

The three most common strategies teachers reported that they would consider using for gifted students were higher level thinking practices (65.7%), independent study (61.9%) and curriculum compacting (46.3%). Two of these strategies were also ranked in the three most common strategies that teachers would consider using with average students, that is, higher level thinking practices (42.8%) and independent studies (30.6%). The third most common strategy considered for average students was drill and practice (40.5%). Drill and practice (49.7%) was the number one strategy that teachers would consider for special education students. Individual instruction (25.2%) and workbook exercises (10.7%) were the additional common strategies that teachers would consider using with special education students.

The strategies of independent study, interdisciplinary activities, problem solving activities and projects are strategies teachers would not consider using with special education students. Whilst other listed strategies ranked low as possibilities for use with gifted and average students, there was not a single strategy that they would not consider using at all.

It is interesting to note that some of the activities teachers considered appropriate for gifted students are not considered for special education students or are considered by only a few teachers. Rogers (2002) suggested that there are strategies appropriate for all students, including gifted students. These may include drill and practice, higher order thinking practices, individual projects, curriculum compacting, individual instruction and problem solving activities. Drill and practice was ranked number one for special education students, but 14th for gifted students with only 4.6% of teachers considering this strategy for gifted students. Despite ability grouping being ranked 4th for special education students, only 8.4% considered it, yet 31.2% of teachers ranked it 5th for gifted students. This strategy would be appropriate for all students, and would provide opportunity for like-minded students to work together cooperatively – a strategy ranked 9th (16%) and 5th (20.6%) respectively for gifted and average students and 7th (3.8%) for special education students.

Discussion

Identification of students who are gifted with a learning disability as demonstrated by this research is possibly not occurring in schools, not because the teachers are unwilling or unsupportive of the concept, but rather because they do not have the ability, knowledge and support to do so. They were interested to learn more in order to provide appropriate educational experiences for this group of students and felt that with the support and cooperation of the staff involved that this could be achieved.

Some of the data obtained from the surveys in addition to data from the interviews confirmed that teachers can identify gifted students and that they are aware of the classroom strategies that are relevant for these students. This was demonstrated by the positive attitudes teachers had towards gifted students and their ability to articulate the characteristics of gifted students. The teachers interviewed were also

able to discuss various appropriate classroom strategies such as open-ended tasks and curriculum differentiation.

Data demonstrated substantial confusion, however, with teachers noting that they have knowledge of gifted education, yet do not rate themselves as confident at identifying gifted students and providing appropriate lessons and instruction. The survey data and interview data also indicated that teachers are aware of the appropriate strategies and activities for these students yet when asked to provide specific examples of tasks or programming for gifted students they were unable to do so.

A contradiction was also established with respect to students with learning disabilities. The survey data demonstrated that teachers had some confidence in identifying these students but interviewing showed that this was probably because the teachers considered that the students were being identified prior to attending class. Additionally the interviewees did not feel it was their responsibility to meet these students' needs in the classroom. This was demonstrated through their inability to provide examples of specific disabilities that they would recognise in their classrooms and strategies for these students that they would implement in their classes.

These issues highlighted that identifying gifted students with a learning disability in the school system is unlikely to occur, particularly when there is a definite and visible divide between students with learning disabilities and students who are gifted. This was highlighted by not only the different attitudes of the teachers as demonstrated through analysis of the surveys but also the contradictions provided through survey data analysis and analysis of teacher interviews. Substantial, appropriate and comprehensive training is needed in order to overcome these deficits.

In order to provide an educational program that is appropriate for these students, teachers need to have sound knowledge and understanding of the special educational needs of this population of students. Through an understanding of these students, teachers will have an awareness of whether the strategies that they are using in the classroom are appropriate. If the strategies are not appropriate, teachers will need to learn what is required in order to be able to implement the correct strategies and activities for diverse learners. The contradictions, conflicts and confusion that have been demonstrated throughout the research highlighted that teachers do not have the ability to effectively meet the needs of diverse learners.

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Mathematics: I Just Know It. Do You? The Gifted Student with Asperger's

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Abstract

Developing effective partnerships between gifted and talented co-ordinators, Asperger's specialist teachers and psychologists can be difficult, given their usual separate focus areas. This study brings together these three areas in an action learning and action research approach in the professional development of teachers of gifted students with Asperger's Syndrome (AS) in a P-12 private college in Queensland. Teachers had expressed confusion about the seemingly opposing aspects of the profiles of these dual exceptional students, and the complexity of addressing their needs in their mathematics classrooms. The findings from the first cycle of the project are reported here. When teachers increase their awareness of the differences of gifted students with AS they become more effective in designing strategies, which are successful in targeting the areas of the students' difficulties, whilst also supporting their strengths.

Introduction and Background

Students' ability to communicate their mathematical thinking is a key element to success in mathematics, especially in Queensland in the senior years at school. Within A.B. Paterson College the "Teaching for Understanding" theoretical framework underpins all curriculum directions. Developed by the Harvard University Project Zero team, the emphasis is on "making your thinking visible", preferably in written form. The rationale is: what students can't explain, they do not understand. Teachers at the college have expressed their frustration and confusion as to why dual-diagnosed gifted students with Asperger's Syndrome (AS) "get the answer", but do not want to explain their mathematical thinking.

Puzzled, also, as to why gifted students with AS appear not to perform to their cognitive ability, teachers have identified difficulties associated with:

- addressing the complex needs of Asperger's students and gifted students, particularly those with a dual diagnosis;
- accessing relevant information to assist them in the development of appropriate strategies; and,

- recognising teaching strategies must be aimed at addressing giftedness and Asperger's.

The "Mathematics: I Just Know It" research project, funded under the "Teachers as Researchers Literacy Numeracy and Special Needs Program - Independent Schools Queensland", came about due to the concerns stated above and those of the school's AS specialist teacher that dual-diagnosed students may be unable to access the same programs available to the gifted students at the college. Neihart (2000) suggests that should it be appropriate that a gifted student with AS be included in gifted programs with schools, that they may not be allowed to do so "because teachers do not know how to make the necessary accommodations".

As members of the Learning Enhancement team, managing gifted students with AS at the college, we have been working collaboratively with the school psychologist since the project's inception in February, 2010. This qualitative study is practice-based, aimed at assisting in building teacher confidence in the value and usefulness of research in practice. The project addresses the following research questions:

1. To what extent do teachers at A.B. Paterson College understand and recognise the strengths and differences of gifted students with AS?
2. How can the gifted students with AS be supported to communicate their mathematical thinking effectively and appropriately?

For the purposes of this study, we have considered Harrison's definition of giftedness:

A gifted child is one who performs or has the ability to perform at a level significantly above his or her chronologically aged peers and whose unique abilities and characteristics require special provisions and social and emotional support from the family, community and educational context. (Harrison, 1999, p.8)

The literature identifies sets of characteristics for both gifted and AS students. Put together, where the characteristics combine and collide in complex ways (Gallagher & Gallagher, 2002), these dual exceptional students may require interventions and strategies that differ from those used with gifted students or non-gifted Asperger's students (Neihart, 2000). Key characteristics relevant to this study, extracted from Amend, Schuler, Beaver-Gaven and Beights's (2009) checklist, are shown in Table 1. In addition, combinations of AS characteristics may also be present, such as: rigid adherence to routines, difficulties with peer relationships, lack of empathy with others and difficulties in interpreting non-verbal cues.

It is difficult to find research that combines gifted and AS characteristics together into a coherent framework that can be used within the school context. In addition, according to Vanderlinde and van Braak (2010), teachers often have problems in accessing current best practice findings from research and find themselves at a loss as to how to implement those findings.

Table 1. Gifted and Asperger's Checklist

| Gifted Students | Asperger's students |
|--|---|
| Excellent memory for events and facts about a variety of topics | Superb memory for facts and detailed information related to selected topics of special interest |
| Dislikes rote memorisation tasks although he/she may do it well | Enjoys thinking about and remembering details, facts and figures |
| If distracted, is likely to return to a task quickly with or without redirection | If distracted by internal thoughts, redirecting to task at hand may be difficult |
| Intense focus on topics of interest | Intense focus on primary topic of interest |
| Extensive advanced vocabulary | Advanced use of words with lack of comprehension for all language used |
| Communicates understanding of abstract ideas | Thinks and communicates in concrete and literal terms with less abstraction |
| Questions rules and structure | Adheres strictly to rules and needs structure |

(adapted from Amend et al., 2009)

Method: An action learning, action research approach

The aim of this project was to develop appropriate and effective intervention strategies for gifted students with AS within their mathematics classrooms. Five teachers and six students across grades 4 to 7 participated in the study. An Action Learning and Action Research (ALAR) approach has been taken, adopting Zuber-Skerritt's (2003) generic model for ALAR programs, in which we act as facilitators/researchers and the six teachers on the project participate as researchers. In each phase, data were collected from all activities within the action learning process, including an initial teacher survey, student interviews, focus group interviews with the teachers, teacher reflection journals, facilitator/researcher observations during workshops, and individual teacher interviews. The aim of data analysis was to identify themes which might provide insight into the research questions.

Initially the students were interviewed to explore their perceptions of their mathematics learning experience. Teachers were asked to complete a survey to assist in ascertaining current levels of teacher understanding of the needs of the gifted student with AS. Teachers were also asked to share their observations of their own students in the classroom. The findings from the student interviews and the teacher surveys established a starting point for the first of three whole-day workshops. These workshops are the key drivers of the action learning process.

During the first workshop gaps in teacher understanding were addressed by the AS specialist, the gifted and talented co-ordinator and the educational psychologist. During brainstorming sessions teachers developed strategies for their individual students. These strategies were implemented in the classrooms and monitored by the teachers for a period of six weeks. As mentors, we supported and observed the

teachers during the implementation of the strategies. Teachers were asked to maintain a reflective journal throughout the study. At the completion of the six-week period, students were interviewed once again to explore their perceptions of their learning experiences under the new strategies. The second workshop was conducted in June 2010, during which the students' perceptions were discussed and teacher reflections were explored further through a focus-group interview.

Gaps in teacher understanding

All teachers were aware of the socialisation characteristics of AS students. This included their difficulty in making and maintaining friendships, significant difficulty in initiating or engaging others in conversation, and lack of social insight (Amend et al., 2009); however, teachers were uncertain as to how these aspects might relate to academic strategies. All teachers were able to identify their student's specialist interest area; not all areas of interest were appropriate for planning academic tasks. Winter-Messiers (2007) suggests AS students respond well to the inclusion of their special interest area into the design of academic activities.

The teachers recognised their students' demands for structure and freedom from distraction. They were also aware that their students have a preference for routine; and three displayed a visual timetable on their board. Visual timetables have been found to aid in students' self-management (Dettmer, Simpson, Myles, & Ganz, 2000).

There were three distinct gaps in teacher understanding as shown in Table 2. Central coherence is the process of constructing a higher meaning from diverse information (Jacobsen, 2005). With a weakness in central coherence the student may "become preoccupied with the detail, focusing on parts rather than wholes" (Attwood, 2007, p. 241). Paying attention to detail is important to the gifted student with AS. Jacobsen (2005) states that when every detail might seem as important as another, the student may become overwhelmed and not know where to start or end a task.

Table 2. Strengths and gaps in teacher understanding of gifted/AS students

| Strengths in Teacher Knowledge & Understanding | Gaps in Teacher Knowledge and Understanding |
|--|---|
| Identify general characteristics of AS | The AS student's weakness in central coherence and poor executive functioning of the brain - classroom implications |
| Identify student's difficulty with social interaction, communication | Intervention strategies to support academic tasks |
| Student's special interest area | Understanding cognitive assessments and classroom implications |
| Student's preference for routine | |

AS students often have poor executive functioning (Attwood, 2007), which results in difficulties in their organisation of ideas and processes. "Attention, organization, and generalization contribute to executive functioning" (Jacobsen, 2005, p. 33). When taking part in investigative processes in mathematics, for example, when the emphasis is on reasoning and communicating ideas, gifted students with AS experience difficulties. It is important that teachers understand the classroom implications of potential weaknesses in central coherence and executive functioning in the gifted student with AS.

To further reinforce the validity of considering these students to be in the gifted range of ability, the teachers were provided with comparative data about the students. This included ability test results and achievement tests. The students' percentile rankings compared to same age peers indicated their current superior ability and achievement. However, this varied with each individual student. Teacher understanding of the student's strengths and weaknesses identified from his/her cognitive assessment may influence the intervention strategies developed to support that student's academic tasks. The Educational Psychologist is able to provide the teacher with the classroom implications of that cognitive profile.

Student profiles

Findings from the student interviews and teacher observations suggest the students have difficulties primarily in communicating their understanding, working in groups, contributing to class discussion, initiating tasks, deciphering what is required if the teacher is not explicit, and in some cases accepting feedback.

Students are observed by teachers to "see the world differently and therefore respond in a creative manner" as expressed by one participant, Mrs J. The teachers suggest that the students have trouble expressing their thinking in written form and "experience difficulties in communicating how they know something" (Mrs Z). One student suggested that he could get better at maths by "studying in his mind. I store facts in my brain and it tries to keep it in storage".

Teachers find that the students have difficulties in seeing what information is important and how to place this in the context of the task at hand. Some students have difficulty in seeing the point of planning prior to commencing a task. Most students reported, and teachers observed, that they dislike working in groups and most prefer working with technology. Students dislike contributing to class discussion and teachers suggest that this may be because they do not know how. Another student was observed by Miss T to:

know and follow rules; he wants to do the right thing. He is happy if the routine is followed, but reacts to change poorly. It is difficult to get him to start tasks. He gets stuck if a basic problem is not solved, he has the wrong book or pencil, and it becomes hard sometimes to motivate him to complete a task. He appears to have difficulty in understanding other people's points of view. And then he might lash out in frustration at others because he is lacking in the skills to communicate his uncertainty.

Inability to discuss uncertainties with the teacher was observed in some students. One student stated that he prefers the learning environment to be quiet and likes to “feel comfortable to ask for help. If I know something, I like to work by myself. If I don’t know something, I like to work in groups...because someone can explain it to me. I like to work with smart and quiet people.”

Phase 1: Strategy Development

As stated earlier, gaps in teacher knowledge and understanding, and student profiles informed the first of the teacher workshops. Immediately, it was evident that the student profiles revealed areas of concern. Provision of opportunities for students to share and compare their own intuitive solution methods with other class members, initially in small groups and then to take part in whole-class discussions, is viewed in the literature as important in increasing student mathematics achievement (Davidson, 1985).

A graphical representation of the implementation of Phase 1 of the project is shown in figure 1. Teachers took part in the first professional development workshop in April 2010, through which relevant information was disseminated from the three perspectives as shown. As facilitators we guided the teachers in linking the perspectives. This is key to the development of effective intervention strategies to trial in their classrooms. The teachers were asked to consider Leach and Duffy’s (2009) categorisation of strategies: preventative (considered before teaching begins), supportive (used during teaching) and corrective (used to redirect or react to a situation). Corrective strategies have already been put in place by the AS specialist teacher at the college. The aim is to limit the need for corrective strategies through the use of successful preventative and supportive strategies. Therefore the latter are the primary focus of the project.

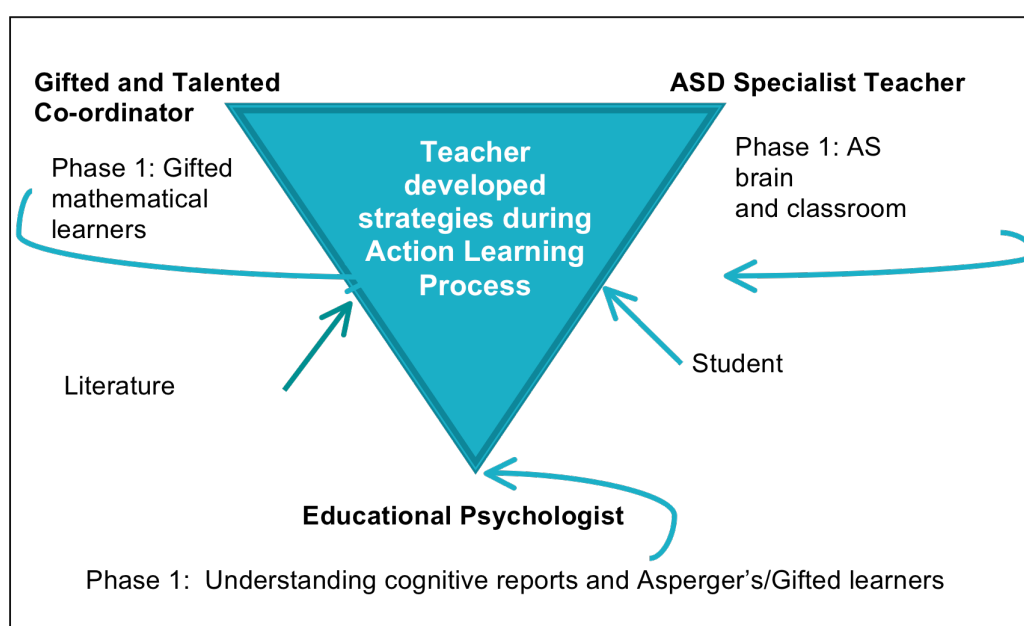


Figure 1. Phase 1 Action Learning Implementation

Table 3 shows examples of some of the strategies developed during phase 1, under Leach and Duffy's (2009) categorisation scheme. Some strategies, which were employed originally as preventative, went on to support the student during phase 1 implementation. Some modifications were made by teachers over the six-week period.

Table 3. Example strategies implemented in Phase 1

| Preventative | Supportive | Corrective |
|--|---|-----------------------|
| Allocate role to student | Flexibility in grouping | Step out/step back in |
| Colour-coded timetable and "to do" list | Providing a rationale for the need to communicate mathematical thinking | |
| Establish explicit social and behavioural expectations | Making goal of task and time frames explicit | |

Discussion

Phase 1 strategies can be seen to address the following themes, which have emerged from the student interviews and teacher observations:

- Working in groups;
- Contributing to class discussion; and,
- Initiating and completing tasks.

Some strategies, developed originally to aid students in initiating and completing tasks, were found to also support them in working in group situations.

Role Allocation

Within one class, the gifted students worked on an independent program. In order to support one of the dual exceptional students in starting a task, Mrs Z set up a management role to be taken by all students within the gifted group. The role rotates and involves the manager questioning the other students about the task they are working on with the use of a script set by Mrs Z. The script includes questions such as: "What question are you up to? How are you going to start? If you are in the middle of it, how are you going to go on?" The manager is responsible for ensuring everyone starts on the task, stays on task and achieves task closure. Initially, the other students modelled the activity to the gifted student with AS.

A younger student has been given the role of Instructions Manager within his class. He is responsible for ensuring that other class members turn to the correct page to begin the task. The allocation of roles to the students has been found to improve their ability to commence tasks. The students were able to build upon the modelling provided by the teacher and the other students. Mrs Z stated:

[He] has realised he can take a risk and communicate with other kids after giving him the opportunity to take responsibility in the gifted maths group. This has also rubbed off in other areas. For example, during group work, in response to other child's statement, he said, "That's great, but how about we think about this."

By giving the student a script to carry out his management role in maths, Mrs Z is providing him with a coping mechanism to assist him to commence tasks and initiate communication with other students in his group. Hart and Whalon (2008) suggest that scripts can successfully be applied in classroom settings as a means of increasing academic interactions. Mrs Z has observed a significant change in the student's interactions with other class members in a variety of subject areas. She suggests that taking the management responsibility has played a significant part in that change. Emphasis has been made in the literature on the importance of the development of self-management skills and independence (Hume et al., 2009).

Flexible grouping

All students in the study have been found to be averse to working in group situations. Miss T addressed this by focusing in the first instance on sharing with a peer chosen by the teacher:

At first I chose a peer whom I thought would allow the student to share and build his confidence, and then the next person he shared with is more at his own level. He then has to compromise as they both share their strategies [for maths problem solving] and use a bit of both strategies. So slow building up and the next person challenges what he has written. We are still at that person, and I am finding that if it is not a big group, if it is a pair, it works quite well. He became an expert in the first pair share and I allow him the freedom of using A3 paper so that he can design it how he sees it in his head. I found that just a blank piece of paper made a whole heap of difference. Owning the work together is what we are working on now.

Miss T allows another of her students to choose a partner to work with on a task "now or at a later time. He has to do it with a partner. If he doesn't do it today, it is happening tomorrow". She incorporates learning to work in pairs and groups within the academic task.

Colour-coding timetable and "to do" list

In response to a student's statement that he thinks in colours, Mrs Z has changed the class pictorial timetable to an individual colour-coded timetable. She also allocates time to sit with the student to colour code a "to do" list. The student has chosen the colours himself; for example, green for urgent tasks.

Activity schedules and "to do" lists have been reported to also contribute to an increase in a student's level of independence, and Hume et al. (2009) suggest that there is a need for interventions that promote independence. This strategy has now been transferred to most tasks within each subject area. Mrs Z stated:

He really struggled to start a task no matter what the subject and by using this strategy he now does this for everything including home learning. When he looks at a list he doesn't realise what should be a priority. He just looks at it as one giant list. Teacher direction as to what is the most important thing to do for that week makes him feel more comfortable and supported.

Mrs Z has found discrepancies in the colour-coded timetable and as a result will implement modifications in phase 2 of the project.

Step out/step back in

The 'step out/step back in' strategy was developed by Miss Y to address the increased anxiety levels experienced by her student when faced with challenging maths problems. When he recognises that his anxiety level has increased to 4 (a 1-5 rating scale), he steps out of the challenging problem and chooses another maths problem that he feels comfortable to continue working on. When his anxiety reduces to level 1 or 2 he then steps back into the challenging problem.

Miss Y found the 'step out/step back in' strategy to be very effective in fostering the student's independence and addressing his increased anxiety levels:

He just changes tasks. He does that himself. It is a choice that he makes independently. It was a very big issue. By doing something related he is not stepping outside the program. It is something that is still constructive and going in the same direction.

Establish explicit social and behavioural expectations

Leach and Duffy (2009) suggest that setting clear behaviour and social expectations for students can enhance learning for AS students. Miss Y has been able to link this strategy with Carol Dweck's (2008) "teaching people to have a growth mindset, which encourages a focus on effort rather than on intelligence or talent". She took it upon herself to link the strategies for AS with the high ability area. She conducted a discussion with the class about self-belief and work ethics. When the students understood the difference between "growth mindset" and fixed intelligence, she guided them in the development of a set of class rules. The rules are displayed in the classroom and the teacher and students make reference to them throughout lessons.

It's okay to follow different paths to the same destination on learning in general and they must believe that they all have a right to share their ideas in a safe environment. And lastly they must believe in themselves. This was developed for all of them but it was originally developed for the gifted student with AS, but they all benefited (Miss Y).

Making goal of task and time frames explicit

Miss T found one of her students "needed an invitation to pack up". He wanted to finish what he was doing instead of engaging in the next lesson.

I allowed him time for closure of an activity, explicitly stating the time and what the goals of the activity were....give him an explicit time for

when the work could be finished...being consistent to follow through so that he could trust me....has really changed the whole dynamic.

Other teachers have found success with clarifying task goals, explicitly stating the time students have left to complete tasks, and providing the students with explicit boundaries when students become overwhelmed with detail. Some teachers have experimented with making the main idea of a task explicit visually and intend to explore this further in phase 2. "Research suggests that the provision of visual structure helps improve the level of organisation and the speed of processing for AS/Gifted students" (Niehart & Poon, 2009, p.24).

Providing a rationale for the need to communicate mathematical thinking

Providing students with a reason for the need to explain their thinking proved to be useful in developing their ability to communicate their understanding. For example, one student was asked to explain his thinking strategy to a lower grade level student. Miss X adopted a novel approach by turning the task into a challenging game. Her student is "very good at number crunching" and just gives her the answer.

He had the answer there and I said, "I bet you can't go backwards and show me your thinking." He said, "I bet I can. See it's like that." And he just did it. Then he corrected me by telling me that actually that is a slow way of doing it, of course it's quicker to go forwards. He then went on to explain. So it has really worked.

Miss X has identified the need to extend this into phase 2 as the student "likes to get up and share his work". She has found that finding the right words to motivate him is important. When she first asked him to explain his thinking his response was:

I just know the answer, it just comes out of my brain. And I said, "Well can you just tell me, can you just think about what's turning over in your brain, what are those numbers doing in your brain?" He said, "Oh okay."

Conclusions

In Phase 1 of the "Mathematics: I Just Know It" project we have been able to identify the extent to which teachers at A.B. Paterson College understand and recognise the strengths and differences of gifted students with AS. Gaps in teacher knowledge and understanding have been addressed through the provision of professional development from three perspectives within the Learning Enhancement Department: Asperger's specialist, gifted and talented co-ordinator, and educational psychologist. We suggest that when teachers increase their awareness of the differences of gifted students with AS and the classroom implications, they become more able to design strategies which are effective in targeting the areas of student difficulties whilst also supporting their strengths.

Phase 1 strategies were primarily centred on three areas of concern: the students' difficulties in working in groups, their inability or dislike of contributing to class discussion in terms of their mathematical thinking, and their difficulties in initiating

and completing tasks. All strategies have been found to contribute to each student's increased level of independent functioning within the classroom, particularly the allocation of management roles. Single strategies were found to target multiple areas of concern.

We suggest that it is important to consider the student's voice; in this study this entailed a student survey, which explored students' perceptions of their mathematical learning experiences. An opportunity was provided to the students to express how they think (in pictures, patterns, numbers, colours etc.), how they think mathematically, and how they prefer material to be presented. Teachers' increased understanding of the students' needs appears to have contributed to their ability to develop appropriate strategies aimed at improving each student's ability to explain their mathematical thinking. Research question 2 will be further explored in phase 2 of the study, where an emphasis will be placed on thinking mathematically from both high ability and AS perspectives.

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The Saudi Arabian Perspective on the Misidentification Issues of Challenging Gifted Learners and the Development of the Four Misses Model of Giftedness and AD/HD

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Students are tomorrow's citizens and tomorrow's parents. This is the true wealth of the nation. So, we must do all we can to give students of today the best and fairest treatment, and the best education possible.

- A mother of a gifted child

The behaviour of a gifted child could be a puzzle! Managing and understanding the behavioural characteristics of gifted children in a regular classroom is often a challenging task. Gifted children by virtue of their natural characteristics differ from their average peers. It seems that the emphasis on gifted education has shifted away from a period of maximising focus on intellectual abilities and IQ scores towards an emphasis on emotional, social, and personality development in gifted children. Researchers have embraced these developmental characteristics as an object that helps to understand the complex behaviours of gifted children and identify the strengths and challenges commonly viewed in these children. Knowledge of the diverse characteristics of gifted children has great importance for making correct decisions about their behaviours. It has been argued that teachers' ability to interpret the behavioural manifestations is a significant component for the accurate identification of gifted children.

It is evident that gifted children are advanced learners and often *develop asynchronously* (Silverman, 1997). Psychologists and educators are increasingly concerned about the manifestations of advanced development in gifted children. A major concern is that these manifestations may be misunderstood and suspected of being psychological disorders. One of the disorders that most commonly is suspected in gifted children is Attention Deficit/Hyperactivity Disorder (AD/HD) (Webb, Amend, Webb, Goerss, Beljan, & Olenchak, 2005). Assigning this disorder in gifted children is questionable and presents unique challenges to parents, educators, and psychologists. Tucker and Haferistein (1997) convincingly argued that AD/HD-like behaviour in gifted children can be effectively perceived as a result of their developmental potential, not psychological disorders. Many investigators have recently turned to study the causes of the misidentification problems.

In recent years, there is a limited but increasing amount of attention given to the need of exploring the issue of diagnostic confusion between giftedness and AD/HD. A growing body of recent research and publications (e.g. Edwards, 2009; Eide & Eide, 2006; Flint, 2001; Hartnett, Nelson, & Rinn, 2004; Lawler, 2000; Lovecky, 2004; Rinn & Nelson, 2009; Ruf, 2005; Webb et al., 2005) has highlighted the importance of understanding the similarities and differences between these two conditions. Despite the emphasis among educators in addressing this issue, research in this area appears to focus more on theoretical musing rather than empirical research. In contrast, I believe, as do Goerss, Amend, Webb, Webb, and Beljan (2006), the shortage of empirical evidence would not indicate that the problem of misidentification does not exist.

This chapter will look at the Saudi perspective on the issue of misidentifying gifted children as having AD/HD. Moreover, international perspectives on this issue including experts' opinions are considered. In particular, this chapter has three objectives: first, to briefly overview the critical challenge of giftedness and AD/HD in the literature; second, to highlight the influences of the misidentification of challenging gifted learners as having AD/HD in a Saudi Arabian primary school; and finally, to explain the components of the Four Misses Model of Giftedness and AD/HD (4MsMGAD/HD) in the Saudi context.

The issue that will be discussed in this chapter is universal and is not just an isolated case that is applicable to the Saudi educational setting. In other words, what was observed in the Saudi context could also be applicable in many cultures. Even though this chapter does not aim to provide empirical evidence about the issue of misidentification of giftedness and AD/HD, the Saudi perspective can be seen as a direction for addressing this issue empirically in further research whether in the Saudi context or other educational contexts. It would be valuable to establish more empirical studies on this area. The chapter will also show how the Saudi perspective connects to the international perspectives regarding this issue.

In Saudi Arabia, some primary schools offer a pull-out program for school-identified gifted students within the resource room. These students come to this room part-time during the school day in order to participate in the gifted program supervised by a specialist teacher in gifted education. Gifted students in Saudi primary schools are generally taught with their average peers in the regular classrooms with the regular curricula and mainstream teachers. The special needs and abilities of gifted learners are often neglected in the regular classrooms. Instead of offering differentiated curriculum and pedagogy for gifted children in the regular classrooms, most Saudi primary schools depend on the pull-out programs as a provision for educating such children.

Referrals of AD/HD for challenging gifted learners in Saudi primary schools are becoming an emerging issue. During my recent professional experience of working with gifted children in Saudi primary schools, I observed that teachers often complain about gifted children's behaviours that bother them such as hyperactivity, daydreaming, interrupting classmates and being distracted. Teachers view these behaviours as disruptive. The disruptive and problematic behaviour can be defined as 'challenging behaviour'. Therefore, the challenging behaviour of gifted children is

frequently misinterpreted as AD/HD-type behaviour. This is the main problem that some Saudi schools encounter. Teachers' judgements on the behavioural manifestations of the challenging gifted learners are controversial. I also noticed that the challenging behaviours of such students often seem to dissipate following their placement in the pull-out gifted program.

Although the issue of diagnostic confusion between giftedness and AD/HD has been, and continues to be widely discussed, there is a dearth of research studies in this area in the Saudi Arabian context. Resulting from the unprecedented research on the phenomenon of giftedness and AD/HD in the Saudi Arabian context (Alamiri, 2009), it is evident that the diagnostic confusion between these two conditions has existed among regular classroom teachers. This matter is consistent with evidence from international research in this area (Baum, Olenchak, & Owen, 1998; Cramond, 1995; Eide & Eide, 2006; Freed & Parsons, 1997; Hartnett et al., 2004; Lawler, 2000; Lind, 1996; Lovecky, 2004; Moon, 2002; Ramirez-Smith, 1997; Ruf, 2005; Silverman, 1998; Webb & Latimer, 1993; Webb et al., 2005). As a result, a combination between such professional evidence provided by many experts and researchers in Western cultures, and Saudi experience in primary schools signifies that this issue deserves further discussion.

The critical challenge of giftedness and/or AD/HD

It is generally accepted that giftedness could cause some behavioural challenges in children, specifically when their special needs are not sufficiently met. Undoubtedly the most relevant to this argument, Clark's (2002) research indicates that gifted children could show some problems that actually relate to their typical strengths. Table 1 demonstrates an example of some gifted characteristics and the potential associated problems. The problematic behaviours linked to the strengths of gifted children can be misunderstood, and therefore these children can be erroneously misidentified with AD/HD (Webb, 2000).

The relationship between giftedness and AD/HD has generated a debate among professionals. This debate often focuses on Gifted, AD/HD: Either or Both? This question has been investigated by a number of researchers (Flint, 2001; Kaufman, Kalbfleisch, & Castellanos, 2000; Mika, 2006; Webb et al., 2005). A critical challenge of this question is whether the diagnostic confusion between giftedness and AD/HD exists or not. A group of researchers and experts support the existence of the possible misidentification of gifted children as having AD/HD (e.g. Baum et al., 1998; Cramond, 1995; Flint, 2001; Freed & Parsons, 1997; Hartnett et al., 2004; Kutner, 1999; Lawler, 2000; Lind, 1996; Lovecky, 2004; Ruf, 2005; Silverman, 1998; Webb et al., 2005).

Particularly, psychologist James Webb, who has extensive experience in the misdiagnosis issues, asserts, "some gifted children surely do suffer from AD/HD, and thus have a dual diagnosis of gifted and AD/HD; but in my opinion, most are not" (2000, p. 5). Mika (2006), however, dispels the belief that potential confusion between giftedness and AD/HD exists, and views this confusion as "a myth that should be put to rest" (p. 242). One of her arguments is that the co-existence between giftedness and AD/HD is not supported by empirical evidence.

Table 1. An example of the characteristics of gifted learners

| Differentiating Characteristics | Examples of Related Needs | Possible Concomitant Problems |
|--|---|---|
| Extraordinary quantity of information, unusual retentiveness | To be exposed to new and challenging information of the environment and the culture, including aesthetic, economic, political, educational, and social aspects; to acquire early mastery of foundation skills | Boredom with regular curriculum; impatience with “waiting for the group” |
| Advanced comprehension | To be given access to challenging curriculum and intellectual peers | Poor interpersonal relationships with less able children of the same age; adults consider a gifted child “sassy” or a “smart aleck”; a dislike of repetition of already understood concepts |
| Unusual varied interests and curiosity | To be exposed to varied subjects and concerns; to be allowed to pursue individual ideas as far as interest takes them | Difficulty in conforming to group tasks; overextending energy levels, taking on too many projects at one time |
| Unusual capacity for processing information | To be exposed to ideas at many levels and in large variety | Resentment of being interrupted; perceived as too serious; dislike of routine and drill |
| Accelerated pace of thought process | To be exposed to ideas at rates appropriate to individual pace of learning- often accelerated | Frustration with inactivity and absence of progress |
| Flexible thought processes | To be allowed to solve problems in diverse ways | Perception by other as disruptive and disrespectful to authority and tradition |
| Comprehensive synthesis | To be allowed a longer incubation time for ideas. | Frustration with demands for deadlines and for completion of each level prior to standing new inquiry. |

Source: adapted from (Clark, 2002, p. 57)

In fact, the trend in misidentification of giftedness and AD/HD has become upwards leading, and posed a challenge for practitioners in the field of gifted education. According to Webb et al. (2005), “we are convinced that misdiagnosis of gifted children and adults is not only a very real phenomenon, but also one that is very widespread” (p. xxiv). Similarly, Gates (2007), in relation to her discussion of this issue in American context, laments that “one of the greatest tragedies of our time is the misdiagnosis of children whose gifted behaviours are misidentified as ADD/ADHD” (p. 109).

What makes the potential confusion of giftedness and AD/HD?

The research study in the Saudi primary school aimed to explore contributions to the possibility of misidentification of giftedness and AD/HD based on the perceptions of teachers and parents. In particular, the study sought to determine the nature of this problem. The participants of the study were three mainstream teachers, who taught school-identified gifted students with their average peers in the regular classrooms,

the specialist teacher in gifted education, who teaches gifted students within the pull-out gifted program, and the parents of three gifted students. All participants' views centred on the behavioural manifestations of three gifted male students, aged between 9 and 12, and whom their regular classroom teachers mistakenly observed with AD/HD-type behaviour.

Based on the results of this study, teachers' and parents' perceptions were quite different in their responses to the challenging behaviours of these gifted children. In other words, mainstream teachers tended to misunderstand gifted children's behaviour more than parents did. Both the specialist teacher of gifted children and the parents had more positive attitudes towards children's behaviour than did mainstream teachers. Table 2 briefly highlights the key indicators of participants' descriptions about the behavioural manifestations of these children.

Table 2. The key points of teachers' and parents' descriptions about the case studies

| Case studies | Teachers' descriptions (Regular Classrooms) | Parents' descriptions (Growing up / Home) | The specialist teacher of gifted students (Gifted Program) |
|---------------------|---|--|--|
| Case 1 | Movement, distraction, inattention. | Naturally grew up, personal traits (i.e. leadership, hard-headed, competitive, desire, intention, challenge). | Different behaviours (positive); interests, creativity, task commitment, leadership. |
| Case 2 | Hyperactive, talkative, a mischief maker, movement. | Gifted, likes movement, is curious, likes asking questions. | |
| Case 3 | Hyperactive, abnormal, high movement, intelligent, a mischief maker, distracts his peers. | Early ear infections, eardrum had burst, hyperactive behaviours, inability to understand the instructions, problem solver, taken Ritalin, then improvement in learning and behaviours. | |

Similarly, the results showed the challenging behaviour of gifted children in different situations; regular classroom, gifted program placement, and home (see Table 3).

Five major factors were found to influence the misidentification of challenging gifted children as having AD/HD in the Saudi primary school. These are:

1. the lack of clarity about the diagnostic concept of AD/HD in the Saudi Arabia, and classroom teachers' lack of knowledge of AD/HD;
2. classroom teachers' self-reported lack of knowledge on how giftedness and AD/HD interweave, as well as their misunderstanding of how 'challenging behaviours' they notice in some gifted children may be a result of being gifted, creative, overexcitable, temperamental, or bored.

Table 3. A summary of comparisons between regular classroom, gifted program placement, and home regarding the challenging behaviour of gifted children

| Regular Classroom | Gifted Program Placement | Home |
|--|---|--|
| Challenging behaviours increase as a result of inappropriate academic environment (i.e. curricula and teaching strategies) | Challenging behaviours decrease as a result of appropriate academic environment, and programs designed to specially engage these students. | The incidence and extent of challenging behaviours are less evident as reported by parents as a result of appropriate environment and parental support. |
| Challenging behaviours are often misunderstood. | Gifted behaviours (i.e. creativity, task focus and commitment, leadership, interests) increase and are understood, and appreciated by the specialist teacher. | Challenging behaviours perceived to be less of a problem by parents. Whatever problem behaviours were reported they seem better understanding and accepted in their child. |

3. the lack of appropriate evaluation and assessment approaches (i.e. measures, diagnosticians, parental assessment);
4. some inappropriate classroom teaching practices; and,
5. the traditional classroom discipline associated with large numbers of students.

The four misses model of giftedness and AD/HD is a way of dealing with these factors.

The Four Misses Model of Giftedness and AD/HD

The updated version of the Four Misses Model of Giftedness and AD/HD (4MsMGAD/HD) emanated from the outcomes of the research study in the Saudi context as well as the related literature (see Figure 1). This model reflects the five major factors previously mentioned. The model is designed to show how gifted children displaying challenging behaviour in the regular classrooms could be educationally misidentified as having AD/HD. This model essentially concentrates more on the educational matter of the potential confusion between giftedness and AD/HD rather than the clinical matter. As can be seen from the Figure 1, the model is divided into two major components: Giftedness (G) and Attention Deficit/Hyperactivity Disorder (AD/HD).

The model is also subdivided into three categories: lack of knowledge (LK), lack of assessment and evaluation (LAE), and unstimulating learning environment (ULE). The five factors of the potential confusion are embedded into these three categories. Basically, the model indicates the long-term process of the four sequential misses of these two components and how the confusion can be generated. The model will be discussed around two themes: (1) the common characteristics whereby giftedness and AD/HD overlap and (2) the factors influencing the misidentification in Saudi

context and how these factors inform the four sequential misses. In fact, the prime purpose of this model is to describe both the international perspectives and the Saudi perspective on the problem of misidentifying gifted children.

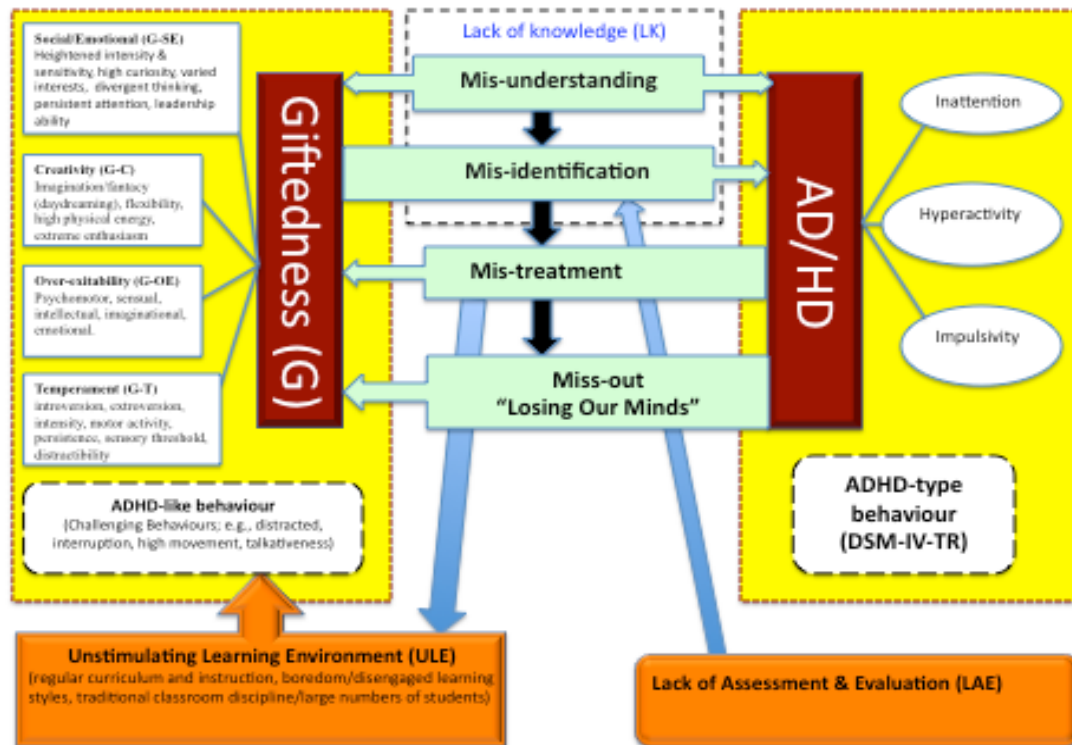


Figure 1. Alamiri's Four Misses Model of Giftedness and AD/HD

1. Giftedness and/or AD/HD

Borrowed from the related literature, the component of giftedness (G) represents the four groups of the characteristics that may be seen in gifted individuals: social and emotional behaviours (G-SE), creativity (G-C), over-excitability (G-OE), and temperament (G-T) (see Figure 1). Each group includes an example of some characteristics as being shown in different sources. These characteristics may warrant an AD/HD diagnosis in gifted children in different ways. To illustrate, these characteristics may be associated with the three major criteria of AD/HD, which are inattention, hyperactivity and impulsivity, and on the basis of the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) (American Psychiatric Association, 2000).

Social and emotional (G-SE)

Gifted individuals by virtue of their natural characteristics and some environmental factors have the potential to be seen with problematic behaviours. Webb et al. (2005) summarised some social and emotional behaviours of gifted children:

- Unusually large vocabularies and complex sentence structure for their age.
- Greater comprehension of subtleties of language.
- Longer attention span; persistence.
- Intensity and sensitivity.
- Wide range of interests.
- Highly developed curiosity and limitless questions.
- Interest in experimenting and doing things differently.
- Tendency to put ideas or things together in ways that are unusual, not obvious, and creative (divergent thinking).
- Learn basic skills more quickly, with less practice.
- Largely teach themselves to read and write as preschoolers.
- Able to retain much information; unusual memory.
- Have imaginary playmates.
- Unusual sense of humor.
- Desire to organize people and things, primarily through devising complex games. (p. 4)

Webb et al. (2005) argue that these characteristics could correlate with the area of misdiagnosis and dual diagnosis. They also indicate that gifted individuals with some of these behaviours are more likely to be misidentified as having behavioural problems than gifted children with intellectual or creative abilities. In relation to the overlap between giftedness and AD/HD, Webb and Latimer (1993) and Webb et al. (2005) highlighted the behaviours associated with AD/HD and the behaviours associated with giftedness (see Table 4).

Table 4. Similarities between ADD/AD/HD and Gifted Behaviours

| Behaviours Associated with AD/HD (Barkley, 1990) | Behaviours Associated with Giftedness (Webb, 1993) |
|--|---|
| Poorly sustained attention in almost all situations | Poor attention, boredom, daydreaming in specific situations |
| Diminished persistence on tasks not having immediate consequences | Low tolerance for persistence on tasks that seem irrelevant |
| Impulsivity, poor ability to delay of gratification | Judgment lags behind intellect |
| Impaired adherence to commands to regulate or inhibit behaviour in social contexts | Intensity may lead to power struggles with authorities |
| More active, restless than normal children | High activity level; may need less sleep |
| Difficulty adhering to rules and regulations | Questions rules, customs and traditions |

Source: adapted from Webb, Amend, Webb, Goerss, Beljan, & Olenchak (2005, p. 45)

Table 4 illustrates that the similarity between giftedness and AD/HD could generate confusion for teachers and parents. The study of Hartnett et al. (2004), and its extended study by Rinn and Nelson (2009) have provided empirical evidence to the existence of potential confusion between giftedness and AD/HD.

Creativity (G-C)

A number of authors (Cramond 1994, 1995; Flint, 2001; Guenther, 1995; McCluskey, & McCluskey, 2003) provided evidence on how creative characteristics can overlap with AD/HD characteristics. In particular, Cramond (1994; 1995) clearly mentioned

that behaviours that are often seen in creative individuals such as daydreaming, high energy, and impulsivity could be associated with the essential characteristics of AD/HD (inattention, hyperactivity and impulsivity). As a result, the creatively gifted individuals are more likely to be suspected of AD/HD.

Over-excitability (G-OE)

The concept of over-excitability (OE) stemmed from Dabrowski's theory of positive disintegration (1964; 1972), which is referred to, by some researchers in the field of gifted education, as the theory of emotional development (Piechowski, 2006; Silverman, 1993). The concept of OE is an essential element of Dabrowski's theory (Gallagher, 1985; Mika, 2006; Piechowski & Colangelo, 1984). A number of authors (e.g., Piechowski & Colangelo, 1984; Tucker & Hafenstein, 1997) employ Dabrowski's theory to address the developmental potential of gifted children. Dabrowski (1972) determined five areas of over excitability: psychomotor, sensual, intellectual, imaginal, and emotional. Many writers (e.g., Bouchard, 2004; Tieso, 2007a; 2007b; Tucker & Hafenstein, 1997) have administered the characteristics of over-excitability as an instrument to identify gifted individuals.

It is argued that gifted children who possess OE may be mistakenly referred for AD/HD, due to the complexity between giftedness, OE, and AD/HD. For example, many researchers agree that gifted individuals with psychomotor OE or imaginal OE have the potential of being misidentified as ADHD or ADD, because of the similarity between psychomotor OE and hyperactivity on one hand, and the similarity between imaginal OE and inattention on the other (e.g. Flint, 2001; Hartnett et al., 2004; Piechowski, 2006; Silverman, 2002; Webb et al., 2005). This argument was supported by Montgomery (2003) who proposed that when family and educators misunderstand the OE of gifted children, those children may erroneously be identified with behavioural and emotional difficulties.

Temperament (G-T)

Kristal (2005) summarised the nine characteristics of temperament originated by Thomas, Chess, and Birch (1968) (see Table 5).

Table 5. Characteristics of Temperament

| |
|---|
| <p>Sensory threshold describes the level of stimulation necessary to evoke a response.</p> <p>Activity level is the child's general level of motor activity when awake and asleep.</p> <p>Intensity is the reactive energy of a response, whether happy, sad, or angry; how expressive a child is.</p> <p>Rhythmicity determines the predictability of bodily functions such as appetite, sleep/wake cycle, and elimination patterns.</p> <p>Adaptability describes how easily a child adjusts to changes and transitions.</p> <p>Mood is the basic quality of disposition. It may be more positive (a happy or cheerful child) or more negative (a cranky or serious child).</p> <p>Approach/withdrawal is the child's initial response to novelty: new places, people, situations, or things.</p> <p>Persistence describes the ability to continue an activity when it is difficult or when faced with obstacles; "stick-to-it-iveness."</p> <p>Distractibility is the ease with which the child can be distracted by extraneous stimulation; the level of concentration or focus.</p> |
|---|

Source: adopted from (Kristal 2005, p. 15)

The majority of researchers in the field of temperament (e.g., Kagan & Snidman, 2004; Keirsey & Bates, 1984; Kristal, 2005; Thomas, Chess, & Birch, 1968) have shown that temperament impacts upon individual personality, behaviour, and learning. Moreover, it is argued that there is an overlap between individual temperament style and AD/HD characteristics (Fischer, Barkley, Fletcher, & Smallish, 1993; Keogh, 2003; Kristal, 2005; Talay-Ongan, 2004). In particular, the characteristic of temperament in children might be misinterpreted as AD/HD (Keogh, 2003; Kristal, 2005). This case is consistent with Silverman's (2002) presentation. She shows evidence on how the confusion between extroversion, introversion and AD/HD can occur (see Table 6).

Table 6. Extroversion and Introversion

| Extroversion | Introversion |
|--------------------------|--|
| Distractible | Capable of intense concentration |
| Impulsive | Reflective |
| Are risk-takers in group | Fear humiliation; quiet in large group |

Source: adapted from (Silverman, 2002, p. 219)

In addition, the behavioural problems of children with temperament styles can be attributed to inappropriate environment (Kagan & Snidman, 2004; Keirsey & Bates, 1984; Keogh, 2003; Kristal, 2005; Oakland, Faulkner, & Bassett, 2004; Prior, Sanson, Smart, & Oberklaid, 2000). In relation to gifted learners, it has been suggested that temperament has a significant impact on the learning styles of gifted children (Faulkner, 2009; Mills, 2003; Oakland, Joyce, Horton, & Glutting, 2000). To illustrate, Faulkner (n.d.) examined the overlap between temperament and giftedness based on his research study in rural schools in Australia. He found that temperament affects not only the identification of children's behaviour, but also the relationship between teachers and students. His research suggests that extroverted students who prefer cooperative activities may present challenging behaviour to introverted teachers who use individual activities. As a result, gifted children exhibiting temperament styles may be seen as being prone to problematic behaviours, especially when they are disengaged with teaching practices.

2. Influences of the potential confusion and the four misses in the Saudi context

As indicated, the aforementioned factors of the potential confusion of giftedness and AD/HD can be classified into three categories: lack of knowledge (LK), lack of assessment and evaluation (LAE), and unstimulating learning environment (ULE) (see Figure 1).

Teachers' Lack of Knowledge (LK)

In Saudi Arabia, it is likely that the training programs for the primary school teachers have neglected to consider the issue of potential confusion between giftedness and AD/HD. Furthermore, the Western psychiatric concept of AD/HD has been translated to Saudi culture. It would appear that the use of the term AD/HD is not uncommon among teachers, but the clinical diagnosis criteria of AD/HD are less known. 'AD/HD' as a descriptor for some children with problematic behaviours has gained increased currency in the Saudi primary schools among teachers and parents.

In addition to the concept of AD/HD, the concepts of giftedness, over-excitability and temperament are often unknown among primary school teachers. Additionally, it has been observed that teachers in Saudi primary schools have a narrow perspective about the concept of giftedness and the diverse characteristics of gifted children. For instance, creative, social and emotional characteristics are more likely to be overlooked by classroom teachers in teaching gifted children.

Teachers interviewed consistently reported that they have no knowledge on how over-excitability, temperament, and creativity could associate with the behavioural manifestations of gifted children, behaviours that might be suspected of AD/HD. For this reason, teachers were unable to differentiate the various characteristics of gifted children from the characteristics of AD/HD. As a result, distinguishing between AD/HD-type behaviour and AD/HD-like behaviour is a formidable task that teachers face in Saudi schools.

According to the literature, the possibility of misidentifying gifted children's behaviours as AD/HD can be ascribed to the lack of knowledge about gifted characteristics and AD/HD characteristics and how these two components overlap (Baum et al., 1998; Hartnett et al., 2004; Lovecky, 2004; Neihart, 2003; Piechowski, 1991; Webb, 1993; Webb et al., 2005). Silverman (1998) clearly points out that there is a shortage of training programs for school employees on how they can differentiate giftedness from AD/HD. This statement concurs with the results of Hartnett et al.'s. (2004) empirical study. They found that due to insufficient training, school counsellors seemed to be unconcerned about the interaction between giftedness and AD/HD, and this could lead them to misinterpret gifted children's behaviour as AD/HD.

Lack of Assessment and Evaluation (LAE)

There are some critical challenges in providing accurate assessments and evaluations to distinguish between behaviours associated with giftedness and those associated with AD/HD. And these have often been overlooked in the Saudi primary school. Teachers' judgments on the challenging behaviours of gifted students were merely based on their regular observations without using a particular type of evaluation or assessment. Moreover, communication between mainstream teachers and parents with respect to the challenging behaviours of gifted children seemed to be underemphasised. Therefore, teachers and parents expressed different perceptions on the behavioural manifestations of gifted children. Similarly, teachers did not often engage with the school counsellor or diagnostician, nor did they seek advice about the behavioural problems of gifted and non-gifted children.

How can teachers and parents know whether the AD/HD-like behaviours of children are indicative of their giftedness, or their true AD/HD? Leroux and Levitt-Perlman (2000) assume that the obstacles in distinguishing between giftedness and AD/HD, as well as the complexity in identifying when both behaviours co-occur, could contribute to the misdiagnosis. Lind (1996) also claims it is unsuitable to identify a child with AD/HD before using inclusive diagnostic evaluation whereby one can discriminate between AD/HD-type behaviour and AD/HD-like behaviour.

It has been suggested that IQ tests, achievement tests, neuropsychological tests, personality tests, and teacher and parent assessments may be useful for making a precise decision about whether a gifted child has AD/HD or not (e.g., Lovecky, 2004; Webb & Latimer, 1993). Although IQ tests are used as a prime criterion in identifying gifted students in Saudi primary schools, teachers who misidentify gifted children with AD/HD do not often consider this criterion on their judgements of the gifted children's behaviours. In addition, it is important to look at the environmental factors that could help distinguish between giftedness and AD/HD. For instance, it is significant to compare the AD/HD-like behaviour of gifted children and their circumstances, such as between school and home (Baum et al., 1998; Lovecky, 2004; Webb & Latimer, 1993). In order to differentiate giftedness from ADD or AD/HD, there are several questions that need to be considered before generating a diagnostic determination:

1. Are the ADD/AD/HD behaviours present in most or virtually all settings?
 2. Is there great inconsistency in the quality of the child's work in almost every setting?
 3. Does the child's behaviour significantly change when the novelty of a situation wears off?
 4. Is the child's behaviour improved when more structure is given?
 5. When the child is interrupted, how rapidly is he [or she] able to return to a task or able to shift tasks?
 6. Can the child engage in solitary activity for long periods of time quietly?
- (Webb et al., 2005, p. 59)

These questions are useful because they present some ways whereby one could determine whether a gifted child has AD/HD or not. Webb et al. (2005) strongly comment "as many as half of the gifted children who have received the diagnosis of ADD/AD/HD do not have the significant impairments that are required by the DSM-IV-TR" (p. 59). Consequently, some problematic behaviours exhibited by gifted children "can be better explained by their giftedness and its implications. In short, they are simply incorrectly diagnosed as ADD or AD/HD" (Webb et al., 2005, p. 37).

Regrettably, aforementioned practices of evaluation and assessment supported by many researchers have not been offered in the Saudi primary school. Although there has been an increasing amount of attention given to the importance of recognising the similarities and differences between giftedness and AD/HD in many cultures, it would appear that teachers and parents are rarely provided with a practical guide that would effectively enable them to understand the overlap between these two components.

Unstimulating Learning Environment (ULE)

In Saudi Arabian primary schools, curricula are often designed to serve average students rather than gifted students. In other words, regular classroom teachers tend to disregard the value of differentiating curriculum and instruction for gifted children. In fact, it seems that teacher-training programs are not adequately focused on this matter. The important question that arose from the literature is: "Do AD/HD behaviours dissipate when educational programs are carefully designed to meet the needs of individual students?" (Baum et al., 1998, p. 103). The Saudi experience

presents evidence that links to this question. To illustrate, the problematic behaviours that regular classroom teachers observed in the gifted children reduced in the gifted program placement and home (see Table 3). Furthermore, the traditional discipline of the regular classrooms combined with the large numbers of students in one class had an impact on increasing the challenging behaviours of gifted children on one hand, and teachers had a difficulty in managing the diverse behaviours of all students on the other.

As a result, gifted children tended to manifest challenging behaviours, which resemble AD/HD, as an expression of being bored and disengaged with the classroom environment. As was mentioned previously, inexperienced teachers misread these behaviours and frequently misidentified gifted children with AD/HD-type behaviour. This is the most likely reason for the potential confusion between giftedness and AD/HD in the Saudi primary school (see Figure 1). This situation is clearly relevant to Ruf's (2005) argument. She claims "[s]ome gifted children are suspected of having learning disorders like ADHD or ADD, when in reality, these children are simply in an environment that doesn't keep them engaged" (p. 263).

Inappropriate classroom practices can be seen as a major source for the potential confusion between giftedness and AD/HD. This argument has been acknowledged by a number of the best-known researchers in the field (e.g., Baum et al., 1998; Eide & Eide, 2006; Freed & Parsons, 1997; Hartnett et al., 2004; Lovecky, 2004; Moon, 2002; Tucker & Haferstein, 1997; Webb & Latimer, 1993; Webb et al., 2005). Despite the diagnostic criteria of AD/HD in DSM-IV-TR, the effect of the educational environment on the diagnostic confusion is acknowledged. "Inattention in the classroom may also occur when children with high intelligence are placed in academically unstimulating environments" (American Psychiatric Association, 2000, p. 91).

The Four Misses of Giftedness and AD/HD

Figure 1 shows the four sequential misses of giftedness and AD/HD. The four misses briefly reflect the three major areas in which there is potential confusion between giftedness and AD/HD and the consequences. Because of teachers' *misunderstanding* of how giftedness and AD/HD intersect, gifted children whose challenging behaviours are a result of being profoundly gifted, creative, bored, and intense are more likely to be *misidentified* as having AD/HD. Teachers' misunderstanding and misidentification are affected by the teachers' lack knowledge on the concepts of giftedness and AD/HD. What heightens the problem of misidentification is the lack of assessment and evaluation processes. In other words, assigning AD/HD among gifted children depends on teachers' regular observations of the behaviours that bother them.

In addition, when teachers misidentify gifted children as AD/HD, they not only misidentify their challenging behaviours, but also misidentify their academic needs. Rather than providing gifted children with teaching modifications that enhance their potential, these children continually receive traditional and inappropriate instructions that cause the boredom and frustration of a gifted child. This can lead to children exhibiting behaviour that looks like AD/HD.

Consequently, children's gifts become educationally mistreated in regular classrooms. They become 'left behind' learners and miss their educational rights to raise their

exceptional abilities. This statement can be reinforced by a case study presented in the previous research in Saudi primary schools (Alamiri, 2009). The study demonstrated a striking story of a gifted child who was diagnosed early with AD/HD (see Table 2, case 3). This child was mistreated by his first school's personnel. They made a decision to expel him from the school because they viewed him as abnormal and unable to learn, despite the mother's demand and belief in the ability of her son to learn. Surprisingly, when this child moved to another school, which offered a pull-out gifted program, he was selected as one of the top ten gifted students, and participated in the gifted program. The advisor of this program identified him as an 'exceptional child'. The child's treatment in his first school illustrates how the school can 'lose great minds'.

In hindsight, and based on 4MsMGAD/HD, it would be important to examine how many gifted students with inappropriate behaviours may be excluded from a gifted program. It might be anticipated that some regular classroom teachers do not nominate a challenging student for a gifted program because they are merely bothered by inappropriate behaviours of the student, and do not notice his or her intellectual abilities and special needs. This potential problem can be maximised when the teachers' nominations are used as a prime criterion for the identification of gifted students on one hand, and teachers lack the knowledge and misunderstand the challenging behaviours of gifted children. The negative attitudes of teachers towards the challenging behaviours of gifted children could contribute to increasing misidentification. In accordance with Flint (2001), "[m]isdiagnoses can cut some students off from services that they may need" (p. 68).

Having discussed this model, it is interesting to see that the Saudi perspective adds to the international perspectives on the existence of confusion between giftedness and AD/HD. Despite the cultural and educational differences between Saudi Arabia and Western countries, there are clear consistencies in relation to the misidentification issues in both contexts. There is an opportunity to apply this model to other cultures, because it includes some critical issues that can be found in many educational settings. In particular, the three areas influencing the confusion between giftedness and AD/HD can be viewed as universal issues. Therefore, the need for effective professional development in these three areas was a matter brought to light by the model. The model implies that improving teachers' knowledge on how they distinguish between giftedness and AD/HD plays a key role in alleviating the problem of the potential confusion. In addition, this model could encourage researchers to provide more empirical studies about misidentification problems.

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The Pilot Project of Twice-Exceptional Gifted Education in Taipei – Reflections on the Policy

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As a coordinator of the Pilot Project of Twice-exceptional Gifted Education in Taipei, I have been very fortunate to be able to contribute to my profession in this field. With the approaching closure of the pilot project, I wish to take the opportunity to reflect on the implementation of the policy. I hold some strong views, which often clash with the dominant thinking on the issues. In this paper, I explain the problems we confront and discuss some possible actions which we might take to move on.

A poison with sugar coating?

Special Educational Needs (SEN) students with above-average IQ scores in public schools in Taipei were invited to join the pilot project. Education provision included a Gifted and Talented curriculum, which was designed to arouse students' potentials and inspire their superior talents, alongwith a SEN curriculum targeted at their limited abilities. Their parents asserted that since their children were gifted or talented, SEN education was not needed. They preferred their children to get "the reputation of Gifted and Talented (G & T)" and wanted to get rid of "the label of SEN." Such thinking caused a serious problem by ignoring the importance of addressing their children's weaknesses and setting unreasonable expectations for their children.

The parents' attitude to the project was "give us more G & T, no more SEN." It brings out the positive effect and the negative effect simultaneously. On the one hand, it makes twice-exceptional learners consider their strengths. With a positive self-image, the pupils are really motivated and this has an impact on their learning. On the other hand, their parents' lack of sensitivity to their children's special educational needs was an issue. Strongly influenced by their parents, the children refused the provision of SEN curriculum or counselling. Their learning problems often worsen because of this lack of SEN awareness. It seems like an "opportunity trap".

The tension between G & T teachers and SEN teachers

Due to insufficient understanding, G & T teachers and SEN teachers in Taipei experience tension in the division of their labour. They may also believe that twice-exceptional gifted education is a new burden which might result in a heavy workload.

In the past, G & T and SEN were regarded as two parallel lines. Nowadays, the aim of twice-exceptional gifted education is to mix the two of them. Due to the lack of knowledge of this new issue, the teachers are afraid to accept the current trend. The truth is that many teachers are afraid of changing.

In fact, that is a misunderstanding. The original intention of the policy is to bridge the profession of G & T and SEN teachers to provide twice-exceptional gifted pupils a better educational service. Through collaboration, alleviating their workload could be 'just around the corner'. The key challenge is how to team them up in order to make them work together for the children's brighter future.

The conflict between parents and policy administrators

This phenomenon occurs due to the difficulty of resource allocation. With the awakening of the concept of twice-exceptional gifted education, parents were empowered and actively strive for their children's rights. Not only twice-exceptional pupils' parents but also SEN pupils' parents spare no efforts to be categorised within the cohort of giftedness. That is to say, even SEN pupils who were not identified as gifted wish to join the project. However, administrators could not meet all the parents' needs because of their limited budget and the limited human resources.

What is more startling is that parents argue for getting twice-exceptional gifted identification in order to give their children a shortcut to get resources easily when their children advance to higher education. They consider the identification as a passport to go anywhere they want. One example is a parent in our research who hopes her child is diagnosed with Asperger's Syndrome in order to receive twice-exceptional gifted education. She knows it is impossible for her child to be identified as gifted through the general gifted identification process. Nevertheless, through twice-exceptional gifted identification, her child may have the chance to be identified. However, the child proved not to have Asperger's Syndrome.

Policy administrators try to distribute resources to people in need appropriately. But many parents are motivated to gain "the more, the better". The tension between them seems unavoidable in the absence of better communication and dialogue to obtain mutual understanding.

The gap between idealism and realism

According to theories, the twice-exceptional gifted identification process should be adjusted in order to meet students' needs. We endeavour to unlock students' potential by decreasing the negative effects of handicaps, which may hinder their performance. How it is adjusted depends on the educators' professional evaluation.

One of the adjustments is to lower the criteria for acceptance into gifted programs. Based on the experience of the three-year pilot project, students accepted on the basis of lower criteria, suffer from great challenges when they enter gifted classes. Even if gifted education teachers attempt to narrow the gap between twice-

exceptional gifted pupils with lower criteria and the general gifted pupils by designing individual teaching and individual counseling, the improvement of students' performance is still limited. Some students even lose confidence in themselves and have inferior self-images.

Therefore, policy administrators suggest other adjustments rather than lowering the criteria. This clashes with the theories. Thus there is indeed a gap between idealism and realism. Before a policy is implemented, the pros and cons should be seriously discussed and assessed. Since the pros outweigh the cons, we have to respect the choice. In conclusion, what is the most imperative here is to balance idealism and realism and to bridge theory and practice.

The struggle between 'absolutely superior' and 'relatively superior'

We have faced a dilemma regarding the selection of our subjects. Should the educational provision be offered to 'absolutely superior' twice-exceptional gifted learners who are outstanding in their talents compared with general students or 'relatively superior' ones who are better than other SEN peers? We decided to give both groups special provision. The second problem was who should offer the provision.

In our pilot project, both cohorts were selected. We found 'absolutely superior' students gained a lot from our project, but 'relatively superior' students did not. That is because the 'relatively superior' students' parents held unrealistic expectations of their children. They considered their children to be as smart as the general gifted students and put their children under great pressure.

Based on this experience, we recommend that absolutely twice-exceptional gifted learners join our project as the curriculum really motivates them. As for the relatively superior students, we did not advise them to do so. Instead, we suggested that SEN teachers offer appropriate educational provision for these students in the SEN resource room.

In traditional situations, SEN teachers often help students with their learning difficulties only. Yet from a contemporary viewpoint, SEN teachers could also inspire students by focusing on their superior abilities. For our relatively superior twice-exceptional gifted learners, we believe placement in the SEN resource room is a better choice for their learning.

Effective vs efficient

As Klees (2008) noted: "In terms of understanding, most fundamentally, all these theories are focused on marginalization. They see the world as composed of systems and structures that maintain, reproduce, and legitimate existing inequalities. From these perspectives, inequalities are not system failures but the logical consequence of successful system functioning." This statement helps us to reflect on what we are doing. We conducted the pilot project on twice-exceptional gifted education over a

three-year period. What did we expect? To set up a perfect policy which makes the 'system' function smoothly? Or just to meet every student's need? I would argue that to establish a perfect and efficient policy is not too difficult to attain, yet to meet every pupil's need is really challenging.

For a policy administrator, 'efficiency' is paramount, that is, to use the least amount of budget to get the best outcomes. However, what teachers and parents are concerned with is 'effectiveness'. They care about whether the children's needs are met and their potential realised. To resolve this tension, we refer to the origin of our policy. Where does the policy stem from? What is the original intention of drawing up the policy? Does the policy achieve our goals?

Do we marginalise our twice-exceptional gifted learners?

As Klees (2008) illustrated, marginalisation is a pervasive phenomenon which we need to consider. The issue is so controversial that it cannot be neglected. In the field of special education, labelling is a problem that concerns many educators. Even in gifted education, labelling is an issue. Nowadays, with the new term 'twice-exceptional gifted learner' being created, a new pattern of labeling appears.

With the new classification, marginalisation has potentially become more serious. Now that the terms of SEN and G & T are regarded as 'special' by the public, the term of twice-exceptional gifted seems 'doubly special'. By such labelling, it may be more difficult for such students to integrate into society. I understand labelling is inevitable since we have to spotlight the issues and provide the children with appropriate education. What we could do is to carefully examine the possibility of marginalising our pupils when offering what we think is the best educational provision to students.

Conclusion

It is not intended to suggest that twice-exceptional gifted education is 'bankrupt' nor should we "throw out the baby with the bath water." I advocate the policy because it reminds us to be attentive to this cohort of learners' needs. The import of the issue cannot be overemphasised.

However, there are still gaps existing in the various facets of the policy as I mentioned earlier. I look forward to seeing more dialogues in order to narrow and bridge the gap. In addition, I yearn for a more equitable society where differences are highly respected and no child is marginalised. No matter what hardship we face, I am confident of a better future. After all, it is not so much where we stand but in what direction we are moving.

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When Giftedness, Dyslexia and Attention Deficit Hyperactivity Disorder (ADHD) Meet: Two Case Studies of Educational Management

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My purpose in addressing this very specific blend of exceptionalities is because in my years of practice offering educational advice, advocacy and 1:1 programs to 'twice exceptional' (2e) students and families this has been the most challenging profile of all. Diagnosis and successful targeting of their range of needs is a multi-tiered process sometimes taking several years. Finding a suitable program 'match' in a school is very difficult as there is no available funding in NSW schools for mandated small groups that can meet their range of needs.

As a tutor of a gifted 7-year old with mild to moderate symptoms of dyslexia, it is quite simple to construct an appropriate, successful program but when ADHD is added into the mix the task becomes highly problematic for reasons I will explain following the definitions of terms.

'Dyslexia' is from the Greek language, meaning 'difficulty with words'. It is genetic in origin and involves functional differences in the brain which affect reading, writing and spelling in various manifestations. Approximately 4% of the population is severely affected, with another 6% having mild to moderate symptoms of dyslexia. Students with dyslexia have some astounding perceptual and learning strengths despite their range of impediments to conventional learning. Strengths in visual-spatial processing, once honed and harnessed, can be of enormous value in memory and problem solving.

Attention Deficit Disorder, particularly the Passive Inattentive Type, which is not accompanied by disruption or impulsive behaviour, is classified as a learning difficulty involving poor concentration, task impersistence, disorganisation, forgetfulness, low self-esteem and poor working memory. In simple terms specific deficits in the frontal lobe activity in the brain caused by the inefficient processing of dopamine, among other chemicals, results in considerable loss of stimulus to the Working Memory and poor recall of the content of classroom lessons. According to Selikowitz (2009), ADHD is considered to be the causal condition from which Auditory Processing Disorder (APD) arises.

Dyslexia is common in children with ADHD(PI). The range in reported prevalence of co-morbidity is from 24% to as much as 70%. Their learning deficits are often misdiagnosed as dyslexia alone. These conditions manifest quite differently but the effects are magnified when the two conditions occur in the one child. For example,

the phonological processing with visual and aural delay of the dyslexic child, requires a literacy remediation program that targets single sounds, blends and digraphs as these children have difficulty in discerning between the single short sounds. Where there is co-morbid ADHD (PI), the attention span of the child may be so limited that there is insufficient 'teachable' time when the child can concentrate on even short, sharp sessions of sound recognition, work and games. Attempts to use remediation for improvements in phonological processing are ineffective without medication specifically where a paediatric assessment and recommendation for medication has been made. Similarly, the use of medication in itself, will not improve phonological processing without appropriate teaching. Low persistence must be avoided as it prevents the exercise of adequate practice in the fundamental literacy and numeracy skills. According to Selikowitz (2009) the combination of the two is essential for these students and I would endorse this view from my clinical experience.

These co-morbid conditions are often missed in gifted children whose reading may develop in the average range in the classroom setting. Combined with superior comprehension, this achievement level is a representation of underachievement in a gifted child.

Case 1: Mark

Mark tested in the top 10% of children in his age group on a WPPSI-III at 5 years 9 months (see Table 1).

Table 1. Mark's IQ test results

| | Composite Score | Percentile Rank |
|------|------------------------|------------------------|
| VIQ | 122 | 93 Superior |
| PIQ | 128 | 97 Superior |
| PSQ | 92 | 30 Average |
| FSIQ | 123 | 94 Superior |

He is an intensely serious child with a huge passion for ancient history fed by his father's reading interests. His dry sense of humour is applied when it is least expected, which makes him quite delightful to adults.

Yet, at 6 years 6 months of age, in Year 1, his educational attainments were: no mastery of sounds or alphabet, variable recognition of numbers, emotional issues at school, and some 'acting out' in Kindergarten from sheer frustration. He reportedly suffered from 'selective hearing', poor fine motor skills for which he received Occupational Therapy, and he had qualified for the Reading Recovery program offered to low progress readers in NSW.

I assessed him for MULTILIT, a research-based reading program from Macquarie University and began to see him twice weekly for half-hour sessions with an expectation of home practice. A diagnosis of ADHD was given at 6 years 8 months and he began to take Ritalin. It became evident that Mark was not the only one with ADHD in his household as the home revision was, at best, spasmodic. It took 12 months to

complete the course but his reading ability is excellent now. His mathematical computation is suffering because he needs home revision for a few minutes each day but it does not happen. At 9 years 5 months he is still reversing letters occasionally, sometimes cannot accurately count the even numbers to 30, but he reads like an adult and his general knowledge is astounding. His self-efficacy is intact and he is not a reluctant writer. The wonderful special education teacher at his school has given him attention four days a week for two years even though he is not a 'funded' student.

There is a long way to go yet for Mark but early diagnosis and intervention have had positive catalytic effects upon his progress. His peers and his school recognise him as a twice exceptional learner, while his giftedness is understood and celebrated.

Case 2: Eliot

Confusion 'reigns' for the families of these children often for some time until diagnoses are made. Eliot's initial IQ testing occurred at age 6 years 9 months (see Table 2).

Table 2. Eliot's WISC III results

| | Composite Score | Percentile Rank |
|------|------------------------|----------------------------|
| VIQ | 132 | 98 |
| PIQ | 103 | 58 *discrepancy >26 points |
| PSQ | 117 | 87 |
| FSIQ | 121 | 92 |

There is a subtest scatter of scores, with weaknesses in Object Assembly, Picture Arrangement and Coding.

Results from the Stanford Binet-V, one month later, revealed no clear indication of a learning difficulty (see Table 3). Mild symptoms of dyslexia were evident in his written work.

Table 3. Eliot's Stanford Binet-V results

| Factors | Standard Scores (IQ) | Percentile Rank |
|---------------------------|-----------------------------|------------------------|
| Fluid Reasoning | 138 | 99th |
| Knowledge: | 137 | 99th |
| Quantitative Reasoning | 119 | 90th |
| Visual-Spatial Processing | 140 | 99.6th |
| Working Memory | 120 | 91 st |
| Nonverbal IQ | 135 | 99th |
| Verbal IQ | 134 | 99th |
| FULL SCALE IQ | 136 | 99th |

Eliot is a technology ‘genius’ in his school community. His handwriting had been supported by Occupational Therapy programs but he was not writing at all. With the Lindamood-Bell Visualising and Verbalising program, and the Inspiration online mind-mapping program he has produced some creditable pieces of work. He now uses voice-activated software, MacDictate, to create some speed in recording his first draft. The full range of spelling strategies and rules have been taught.

Eliot has been in a self-contained gifted class for 3.5 years but is not meeting grade level in mathematics although his 1:1 program is structured on Bruner’s spiral curriculum to revisit and build concepts. His quantitative reasoning is strong but his computational skills and motivation for mathematical computation are still weak.

It is difficult to extend such a specific intensity of interest in technology during tutoring as he extends himself with it constantly. He helps me with my technology needs. Eliot is a kind and generous boy who exhibits complex emotions in response to his daily experiences.

Eliot has not been medicated for ADHD although several psychologists have diagnosed it, because his parents are opposed to this type of medication for their son. I have counselled them that this will cause a slower rate of academic progress but they are contented with that. His spelling age is equivalent to his chronological age, currently 11 years 8 months.

The discrepancies that exist for Eliot are evident in his National Assessment Program – Literacy and Numeracy (NAPLAN) results. His NAPLAN results for Year 5 at 10 years 6 months:

| | |
|-------------------------|--------|
| Reading | Band 8 |
| Writing | Band 3 |
| Language Conventions: | |
| Spelling | Band 5 |
| Punctuation and Grammar | Band 7 |
| Numeracy | Band 5 |

The critical areas for intervention for students with ADHD and reading difficulties are the deficits in executive function, a slower processing speed, problems in language comprehension (*consider giftedness here), phonological processing and the core ADHD behavioural symptoms.

A study by Tannock (2007) found that children with ADHD plus co-morbid Reading Disability (‘dyslexia’) need specific treatment for *each* component of this co-morbid condition. They need a combined treatment approach. Reading instruction plus stimulant medication may be effective. She concluded that stimulant medication improves behavioural symptoms of ADHD but has no effect on phonological processing, and that specific, focused, individualised and intense reading instruction improves phonological processing abilities.

Twice exceptional children are gifted first and they need an advanced curriculum aimed at developing their passionate interests. They are often missed for Learning

Disability diagnosis because they compensate with their considerable cognitive strengths.

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