

Visual Spatial Children: Learning Disabled, Learning Disadvantaged or Learning Differently

By Cate Turner

*I feel that I am in an interesting position as far as understanding gifted education in this country, more particularly this state. I am lucky to have as friends many people who share my passion for improving the understanding of gifted issues. I am lucky that I can pick up a phone and ask a question or an opinion of them, maybe debate the point, throw out a few ideas and end up understanding a whole lot more than what I was initially asking. More often than not it ends up promoting thought on a conscious or sub conscious level which eventually filters out as an article in **Gifted** or a chat to a parent needing understanding. When I began this article I simply wanted to discuss the needs of visual spatial learners in the classroom – however the further I delved the further the parameters extended. Lesley Sword's (psychologist for the gifted and quite probably Australia's visual spatial expert) writings have proved invaluable and her answers to my never ending stream of questions promoted more and more questions. Ultimately, after hearing her speak about visual learners at a seminar, my thought process crystallised and I realised that I did not believe visual spatial learners to be disabled in the commonly employed educationalist term – GLD. I believe that they learn differently to the majority – and because they are the minority and the 'majority rules' – their learning style is deemed a 'disability.' Thus this paper has become a discussion paper about how to teach to a visual spatial child whilst expounding the theory that such children are **different learners** not **disabled learners**. This discussion is framed within the context of Gardner's 'Theory of Multiple Intelligences', an outline of which is provided in **Appendix 2**.*

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I had not seriously thought about how difficult it is for a teacher to determine giftedness in terms of visual spatial intelligence before I read *The Challenge of Meeting the Needs of Gifted Students in the Regular Classroom: The Student Viewpoint* by Bruce Knight and Tricia Becker. Indeed, as much as it pains me to admit it now, visual spatial was simply another one of Gardner's Intelligences and I thought little more about it. Resultingly, I had also not thought about how teachers may 'teach to' a visual spatial learner to optimise their learning potential. After some research and discussion with visual learners it also became apparent to me that far from the 'Learning Disabled' tag that is frequently applied to visual spatial learners (especially those with auditory processing difficulties), such learners simply learn in a different way. Another way of looking at this is to ask, 'Does learning in a different way to the majority, make visual learners 'disabled learners?'

'Dr Linda Silverman, the pioneer of the visual spatial learner concept identifies two types of gifted visual spatial learners. The first is children identified as gifted who score extremely high on an IQ test because of their great ability both with tasks using visual spatial processing and those requiring auditory sequential thinking processes. The second is children who have great ability in visual spatial processing and marked weaknesses in auditory sequential processing.' (Sword, 2000, p1)

In literature concerning visual learners it is commonly (and I feel appropriately) accepted that there are 2 types of gifted visual spatial learners. The first style of gifted visual learner (as described above) is not commonly discussed in literature as anything other than gifted. I believe this is because they are also gifted in auditory sequential learning – the learning of the classroom. Quite clearly, the first type of gifted visual spatial learner identified by Silverman, has advantages over the majority of the population. They are lucky to be both visually AND auditory sequentially talented - the beautiful images that they see from the visual side of the brain luckily also have words attached to it – words that they can express clearly and relatively easily. Looking at it in perhaps easier to understand terms:

Call to mind a spider's web with dew. A gifted visual spatial learner will easily see the image with all the detail available to an imaginative creative mind. If that child is also auditory sequentially gifted he will be able to describe it to such an extent that another person can 'see' what he is seeing. If the child is gifted visual spatial with an auditory sequential weakness than he will see the image in all the marvellous detail available to the first child but not be able to express it in such a way that an image is painted for another to 'see'.

For the purposes of this paper I would like to look at educational issues relating to the second style of learner described in the example above – what many in the teaching profession would term a **gifted disabled** or a **GLD** child. Incorporated into this is a reflective discussion with 2 adult visual spatial learners about how they learn and about strategies that perhaps could have been utilised in the classroom to further support their learning styles. I chose to speak to 2 adult spatial learners as they could look at their learning experiences with a sense of perspective and comprehension that a younger child currently experiencing school perhaps could not. I would also like to discuss whether the term *Gifted Learning Disabled* is an accurate summation of what a gifted visual learner actually IS.

What is a GLD child?

Baum, Owen and Dixon (1991, p5) define a Gifted Learning Disabled child as one whom

'demonstrate(s) a substantial discrepancy between performance and ability.'

Yet also:

'commit(s) time and considerable effort to demanding, creative activities'

(Baum, Owen and Dixon, p3)

A child, in terms of my reading, is only identified as GLD, when there is a mighty gap between the expectation of what the child can accomplish (by both the child, teacher and parent) and what he actually does accomplish. Such expectations may be due to the child displaying advanced conceptual understanding or being incredibly adept at geometry and physics or by having a high level of verbal comprehension. These indicators suggest that a child may be gifted. However, when these abilities are combined with said child (or adult) having difficulty with factual memorisation, low word recognition and poor skills with mathematical calculation the individual is termed GLD. (Silverman, 1999, no pagination)

Many gifted visual spatial learners learn to function in the everyday classroom, due to being gifted in auditory sequential processing as well. However, the gifted visual spatial learner that has an auditory processing weakness may never be able to learn to an optimum level when the teaching style is inherently different to his learning style. Whilst this learner may or may not fulfil 'outcomes' for curricula, the reality is that many visual spatial children with auditory sequential anomalies are not learning to their full potential. Such children due to their outstanding gifts may adapt their learning style to the classroom so that their difficulty becomes hidden. Teachers simply see the child as 'average'! Yet what such children have achieved is already remarkable – they have adapted their learning style to cope with a method of learning which is thoroughly alien to their capabilities.

If they are this smart are they really disabled?

The Macquarie Dictionary: Revised Edition (1995, p511) suggests that the word 'disability' means:

Lack of competent power, strength, or physical or mental ability; incapacity.

and that the word 'gift' in our context means:

A quality, or special ability; natural endowment talent. (p740).

Translated, according to the above definition, a **Gifted Learning Disabled** child refers to an individual that has an impairment in a physical or mental ability, yet also has been blessed with talents in specific areas. Relating this definition to visual spatial learners, who are commonly termed GLD, it appears that that many educationalists see visual learning as an inferior method of learning, hence the term 'disabled'. A child that thinks in pictures is thought to learn imperfectly. Hence, many teachers believe that such children lack the mental ability to function in a classroom. If such a child also displays obvious outstanding and in-depth knowledge in some areas then the word 'gifted' is applied to them.

Almost immediately the child becomes a contradiction.

How can the child be gifted and disabled at the same time? To be gifted in visual spatial intelligence is to have a natural precocity to think in pictures – to see the patterns and shapes that comprise the world. Yet, because of this gift of a different way of learning, (which is so rich in detail and creative adaptation), many children are given the tag disabled. Is such a child, gifted with natural ability to learn by seeing and recalling the world in minute detail, really disabled? Or do these people have talents far exceeding what many people see in them? Is it a disability to see the world in pictures rather than words or is it simply just a different way of learning that teachers and educators CAN cater for?

I asked two 39-year-old adult male gifted visual spatial learners about how they learned, school experiences and what they thought about the term gifted learning disabled.

Left

Whole

Right

Before analysis of the above diagrams it may be worth explaining a little more about how *Left Brain* people, *Whole Brain* people, and *Right Brain* people actually learn.

Left Brained Learners ~ Auditory Sequential

Most of a left brained learners information is stored in alpha numeric form. For example, rather than remembering someone by their face they remember them by their name. If a left brained learner is trying to find directions to Ryde from Collaroy they would more than likely memorise the street names and how many stop lights, roundabouts and turns there are from point A to point B rather than pictorially describe the route. Information is absorbed by the left brained learner in a sequential manner - rather like an algebraic equation: if $J = 10$ and $P=15$ than $P + J =$ (quite obviously) 25. Rather than seeing the 'big picture', left brained learners see the world in piecemeal form and need to have each piece in place (in order) before they can proceed to the next step.

Whole Brain Learners ~ A relatively even mix of both auditory and visual

Whole brained individuals have the best of both worlds as they have an ability to shift the task at hand to the side of the brain that most suits the style of processing to be done. As Freed and Parsons (p53) suggest, 'When it comes to reading directions or doing a logical exercise, whole brained people are efficient and able to sequence enough to complete the project. They also enjoy creative abilities and can paint, create music and use their intuition.' Because they can learn across the full brain continuum whole brain learners are remarkable holistic in their approach to problem solving and personal relationships, they can see the 'forest and the trees'. (Freed, p53)

Right Brained Learners ~ Visual/Spatial

'The further the individual falls along the continuum, the more intuitive and random in processing he will be, and the more apt to store information primarily in pictures.' (Freed, p55) If a right brained learner is asked to remember an event they are likely to flash to an image and remember it in minute detail. Street directions are given by sight recognition, "You go past the Oak factory and turn left at the Vita Wheat factory," rather than by detailing street names. Such learners regularly master the big picture or larger concept as a first 'step'. Later in their processing they go back to fill in the blanks. As they are spatial and three dimensional in their thinking right brained thinkers are more at home drawing or creating, than holding conversations or report writing. Right brained thinkers have an incredible ability to hold images in their head for extended periods of time.

Are we all just one or the other?

At this point I feel that it is important to note that just about everyone thinks to some extent in pictures – it is not an ability that is strictly limited to a fortunate few. This statement is particularly true for many gifted individuals. According to Sword, 'Gifted people have a preference for visual spatial thinking because it is faster and more powerful than auditory thinking.' (Sword, www.giftedservices.com.au/visualthinking.html) So, whilst an individual (gifted or not) may function in a predominately left brained manner chances are that visualisation is implemented (in some shape or form) without ever realising it. As Gardner suggests (quoted in: *Seven Ways at Once*, p8) 'some students have relative strengths in several intelligences'. Just in the two examples of Jerry and Pat it can be seen that a person may be an amalgamation of many learning

styles. There are many children sitting in the classroom learning quite proficiently in an auditory sequential manner – yet these children may be equally at home learning kinaesthetically, visually or even musically. These children are not being given the opportunity to participate in a well rounded learning environment. Such children may surprise the teacher when they are given the opportunity to explore their *other learning abilities*.

Relating this to the diagrams

At first glance this may seem a confusing equation. Though to summarise, on a scale of giftedness relating to visual spatial, both are on the right (creative side of the brain) although at differing levels of ability. When they are placed on a scale to determine left brain or auditory sequential giftedness Person 2 is oriented more toward the left indicating a moderate level of giftedness in that area. Person 1 remains at the right side of the scale indicating that he is not as gifted in that area as Person 2. (I emphasise here that this is my own determination of each individual.) As the diagrams indicate, Pat and Jerry are different in their overall learning styles – yet both are visual learners

The World of the Gifted Visual Learner with Auditory Sequential Processing Difficulties – Jerry and Pat

I asked Pat (Person No 2) whether he could see a picture for every word and if he didn't I wondered how it affected him when he read?

'No I don't see pictures for every word. I read and understand words like 'that', 'was', 'it's' etc. but I see picture for descriptive words or groupings of word. eg. I see the written words 'mountain range' and I see a mountain range in my head. When I read a character name for the first time, if there is a description I then have a mental picture of what they look like and every time I see the name again the picture flashes into my mind. The more descriptive the passage the faster I am able to read and retain those images longer than in non-descriptive books.'

Pat's answer is typical of how a visual learner absorbs the world. 'Visualisation is the key element in the mental processing of visual spatial learners. They think primarily in images or pictures – either still like photographs or moving like videos' (Sword, 2000, p28).

Temple Grandin (a well known US author on autism) suggests that:

'Words are like a second language to me. I translate both spoken and written words into full-color movies, complete with sound, which run like a VCR in my head. When someone speaks to me, his words are instantly translated into pictures' (Grandin quoted in Freed, p71).

Keeping this in mind I asked Jerry how he saw the world.

'I have no concept of day or night, my cycles are counted by the ideas that circuit through my mind. Some times I catch a glimpse of the outside world,..... What I don't understand is why they travel in such slow motion. I some times wait for them to catch, but then some thing always gets in the way to distract me, and by time I remember I was waiting for them, they went off some where else.'

(Jerry, Author's personal notes)

Item 1 ~ see next page

Discussing Jerry's words with him to gain a further understanding I determined (and he agreed) that the world appears incredibly slow to him, a lot slower than the pictures flying through his head. It would have to wouldn't it? Using the spider web analogy again just think how much quicker it is to see the web, move on to the next thought and the next than to STILL be verbally describing the web.

Jerry suggests visual spatial learners have:

'...a lag, or slower response time when answering questions or conversing in verbal language, because we see a picture, but words are different to pictures. There is the saying that 'a picture paints a 1000 words' - well imagine trying to get a 1000 words worth of an idea out in 2 sentences or less. Or being limited in explaining some thing, without hand signals or being able to draw a diagram.'
(Jerry, Author's personal notes)

Looking to how Jerry's style of learning affects his ability to write it is apparent that he still finds it hard as a 39 year old to organise thoughts into a coherent contextual statement. Jerry also finds it difficult to form sentences and misses words that he cannot associate a picture with – in **Item 1 (previous page)** the word 'up' after 'wait for them to catch' and the 'the' after 'by' in the second last sentence. Jerry is very clearly 'Right Right Brained' comparatively lacking in auditory sequential processing ability.

Jerry explains:

'When we need to write, we have to break down the pictures into the smaller parts of the pictures (ie letters) and this takes time, especially when we have to think and recognize the order of the letters in our heads, always reflecting back on the pictures in our heads, to compare the parts, which means that we have problems with time, and neatness, because it isn't a single process.'
(Jerry, Author's personal notes)

However, Jerry does paint an incredibly vivid picture about how he sees the world, and this without further evidence may suggest auditory sequential giftedness. Although having discussed his answer with me, I know how long it took him to place his thoughts into words. It was a tortuous process for him. If I had asked Jerry to verbalise the above words in terms of something like a phone conversation he would have, quite literally, been stuck. I can imagine the silence, (whether on the phone or in person), as he struggled to put words to what he was seeing. Jerry had the time to formulate his picture into words, so eventually he felt comfortable enough to describe what he saw. If Jerry was gifted with both words and pictures he would have been able to formulate his thoughts with much more ease and with much less time.

Even though Jerry can clearly 'see' his thoughts he has difficulty verbalising them. Does this make him a disabled learner?

I asked Pat:

"Do you see yourself as a gifted visual spatial learner or a gifted auditory sequential learner or a combination of both? "

He responded:

*'Probably more visual spatial and auditory sequential as I understand them.
Although I some learning sequentially.'*

Pat has the same difficulties in sentence construction as Jerry. The 'and' in the first sentence should be a 'then'. The second sentence is missing a word after 'I'. The sentence construction is poor in the first paragraph with the last phrase reading 'and I understand them' when perhaps what he means is he 'understands the concept of each'. Yet, even though Pat does not show the same eloquence in written description that Jerry commands I would call him more auditory sequential than Jerry. I have had extensive conversations with both Jerry and Pat about many and far ranging topics, and Pat is by far the more at ease in the world of words. Whilst his written work reflects poor left brained ability his conversation is flowing, humorous and descriptive. Pat simply needs to be taught a methodology to get the words that he speaks so freely, onto 'paper.' Pat appears to be able to form coherent, thoughtful expression, as in conversational discussion, but needs to apply some of the strategies listed later in this article to encourage further development in spelling and sentence construction.

Does Pat's inability to write coherently make him GLD?

Pat can physically hold a pen and speak decisively. His thought processes are viable and expressive and he **can** learn. Is he really disabled or is he learning in an adaptive manner, a manner that is different from the norm?

Jerry pauses continually in conversation, trying to formulate what is going on in his head into verbal expression. Jerry cannot, quite literally, find the words. Of course this is in part related to poor auditory sequential skills and in part to Jerry's level of overall giftedness. Jerry is classed as profoundly gifted at an IQ level of over 180. According to Hollingworth (quoted in Gross, p127-128) children scoring in the IQ range 125 –155 are 'well balanced, confident and socially affective individuals'. However, what is interesting is that once children reach a level above the 160 IQ mark the difference between that child and their age mates is so great that it leads to special problems of development which are correlated with social isolation.'

Jerry's level of mental activity is so high that the thoughts fly around non stop and as such it is difficult for him to form one of those thousands of thoughts into a simple sentence. I would assess, and again I emphasise that this is my own personal assessment based on my knowledge and interaction with the gifted community, that Pat is most likely to fall in the IQ range of 125 – 155. Quite clearly levels of giftedness have a relationship to expression. If a highly gifted visual spatial learner is also highly gifted in what Gardner calls *Linguistic Intelligence* (part of the Auditory Sequential area of learning) than they have the blessing of being able to formulate their incredibly creative and fast flowing thoughts into verbal expression. Although Jerry is incredibly gifted in visual spatial thought processing he is unable to express his abilities and thoughts in a way that people can understand - he is not gifted linguistically. Applying this determination to Pat it is easy to reason that due to his lesser level of giftedness as well as his inclination toward Linguistic Intelligence, that he would have much easier time with general conversation and everyday interaction within the world.

Does Jerry's inability to readily express his vivid and eclectic thoughts into English make him learning disabled? Or does it make him a different learner?

Michael Piechowski writes that:

It is a common mistake to take something exceptional as being abnormal. What looks abnormal and creates difficulties for the individual, mental health professionals tend to see as something to be cured. (Piechowski, p 31)

Visual spatial learners do not need to be 'cured'! However, they do need to be accepted as different learners and do need to be in a classroom that accepts them and teaches to them.

Is it really that difficult to successfully teach a visual spatial learner?

Attitudinal Concepts

How can a teacher teach to a child that **'thinks** the world' so differently from the majority? I use the term 'thinks' deliberately here. As Sword suggests: 'Spatial and sequential thinking are two different mental organisations that affect the way people view the world'. (2000, p27) Spatial 'mental organisation' involves 'synthesis, an intuitive grasp of complex systems (often missing the steps) simultaneous processing of concepts, inductive reasoning (from the whole to the parts), use of imagination and generation of ideas by combining existing facts in new ways. (2000, p27). Simply stated spatial thinkers are creative or original thinkers. Left brained or sequential thinkers analyse known facts, reason and progress from simple to complex ideas. Left brained learning is the 'norm' for the everyday classroom.

To teach to a spatial child a teacher has to be open to the idea that there is a different way of learning than the one that he may be using in the regular classroom. Also absolutely necessary is a belief in the possibility that such children may not necessarily be 'disabled', that they may in fact simply be different. This is an attitudinal concept. If a teacher feels that the child that they have concerns about has a brain 'defect' than they will treat the child differently to the child that needs something 'explained' in a different manner. Gifted children, in particular gifted visual spatial learners, are very sensitive to people's perceptions of them and their learning abilities.

I can still remember the feeling of being sent to remedial reading in 5th class because I didn't read fast enough aloud in class. I knew the words –they just took longer to come out. The stigma that is associated with the remedial classes is very profound to someone who knows that they do not belong there.

(Pat, Author's personal notes)

Such sensitivity is a key indicator of visual spatial learners listed in *Silverman's Visual Spatial Learner Attributes Comparison between The Auditory – Sequential Learner and the Visual Spatial Learner* (Silverman, www.gifteddevelopment.com/articles).

Educational Concepts

A parent of a gifted visual spatial girl of 8 tells of how by supplying her daughter's open minded teacher with a book on differentiating the curriculum his (the teacher's) whole idea about teaching was dramatically altered.

When Beck was in Grade 4 I explained the techniques to her teacher and also bought him a book on differentiation of the curriculum for different learners. He was very much an auditory teacher, however, wanted to trial these techniques. To his amazement, he found children he thought were learning disabled, were lapping up the curriculum in ways he never thought possible. He now tests each child at the beginning of the year to see their learning style and has found he has less disruptions in class, he is getting more from his students and he is enjoying teaching even more himself.

(Maddie – Mother of Beck, Author's personal notes)

Quite possibly Beck's teacher employed some of the ideas outlined below as part of the everyday life of the classroom. It is almost certain that if some of these concepts had been incorporated in Jerry or Pat's classroom than their learning experiences would have been considerably different.

Spelling

Linda Silverman suggests that visual spatial learners respond best to the following spelling techniques:

- Show them the spelling word
- Have them close their eyes and picture the word. Have them create a wild and crazy image of the word.
- Have them spell the word backward with their eyes closed.
- Have them write the word.
- Using a kinaesthetic approach, such as sand tracing of sandpaper letters, with young children.

(1999, No pagination) – See **Appendix 1** for some **General Rules for Assisting Visual Learners**

Interestingly when I asked Pat how best he learnt he reiterated Linda Silverman's point about kinaesthetic learning.

I learn best when shown. I am a 'hands on' learner with subjects that have a practical base I find that I learn much faster that with subjects that are theory based. I can learn theoretical subjects on my own but this takes much longer and is very frustrating. If I have someone to explain things in an understandable fashion I can grasp theory subjects a lot quicker.

Kinaesthetic or Bodily Intelligence is another aspect of Gardner's *Model of Multiple Intelligences* and in my research, I have found it to be almost inextricably linked to Visual Spatial Intelligence. One of the most common reasons a child develops an exceptional ability in space and vision intelligence is due to a lowered ability to process information in an auditory sequential manner. This can be due to repeated ear infections or blockages (Silverman, 1999, no pagination; Sword, p28) or it may simply be a genetic predisposition. As these children are not having optimum sound input 'they use their eyes as a means of compensation and develop high visual spatial abilities'. (Sword, p

28) Many also develop high levels of body awareness as well. Such individuals learn with their hands more easily than they learn with words. Pat, in his description of how he learns, supports this concept.

In further discussion, Jerry also supported aspects of Silverman's teaching methodology saying that he has to 'see the word in his head' (Jerry, Author's personal notes) before he can spell it. Jerry would have benefited from a *Visualisation Approach to Spelling*.

As described by Silverman this involves:

1. Writing the spelling word in large print in brightly coloured ink on a card.
2. Holding the card at arm's length.
3. Studying the word, then closing eyes and picturing the word in the mind.
4. Doing something wild to the word in the imagination.
5. Placing the word somewhere in space (in front of the body or the head)
6. Spelling the word backwards with eyes closed.
7. Spelling the word forwards with eyes closed and then:
8. Opening the eyes and writing the word once.

(1999. No pagination)

I asked Pat what could teachers have done to make learning easier for him.

I feel that it would have been more beneficial for me to have had teachers show me how instead of telling and having me read how to do then. Maths in particular was a difficult thing for me to get hold of after the basic add, subtract, divide etc and the multiplication tables were a disaster.

(Pat, Author's personal notes).

The key word in Pat's explanation (here and above) is the word **show**. Silverman said it best, 'These children remember what they see and often forget what they hear. The trick is teaching them effectively is showing them, rather than telling them.' (1999, No pagination) Pat would have benefited from being given a visual display of what was expected of him. In regard to maths, where key elements of learning involve rote memorisation, particularly series of numbers, visual children need to see the whole picture first before they can break it down into segments.

Mathematics

Freed suggests that a right brained visual spatial child may benefit from an approach that 'capitalises on his ability to count and hold numbers in his head' rather than the standard repetitive drill of $2 \times 7 = 14$ and $3 \times 7 = 21$ (p130). Silverman gets children to complete blank multiplication tables complete with as many shortcuts as possible, enabling them to see the parts of the process which make up the whole. Shortcuts include deleting the '0's' column (everything equals zero) and the '1's' column (everything equals itself). The '10's' column is next to go as you just add a '0' to the number being multiplied. After this the '11's' are discounted as there is quite obviously a pattern of the second digit being the same as the first (11,22,33 and so on). If a child knows 'counting by 5's and by 2's' then even more tables can be eliminated. (1999, no pagination) This process continues on and eventually the child has only a few facts to learn rather than the 'huge' amount that initially confronted them. How much easier would it have been if Pat had been shown this way of multiplication rather than the auditory sequential rote learning?

The Philosophy of Being Right Brained

'As nature gives the right-brained individual a strong visual memory, it also tends to diminish the ability to perform logical, linguistic tasks. While the right brainer has a head start in the world of pictures, he's handicapped in the world of words. Unfortunately for him, our schools are primarily in the worlds of words.' (Freed, p 53). Imagine how difficult Jerry would have found life in the average classroom.

'To ask a child who thinks randomly and pictorially to learn to read using a method that's sequential and sound oriented is handicapping him from the start.'
(Freed, p 108)

Jerry had and has great difficulty relating to the world, he sees the world and wants to join in but doesn't know how to partake.

I live in a noisy neighbourhood, I can't actually see out my two grand windows, but I do have a big TV screen. However I can't seem to get it connected, (Jerry, Author's personal notes)

Try to imagine how difficult it must have been for both Jerry, and Pat to feel 'normal'.

It must have been incredibly difficult for Pat when he was sent to remedial class for reading (when he could read perfectly well) or for Jerry when he could not articulate what was spinning around in his head.

I asked Jerry and Pat independently whether they thought of themselves as 'Disabled Learners' Their responses were amazingly similar.

Yes, I consider myself a disabled learner when being within an non Visual Thinking learning environment. But I would more think the term is a more like a disadvantaged learner, rather than a disabled learner. This is because the systems that are used for imparting knowledge, often have an inverse order or even an inverse logic to how a Visual Thinker thinks.
(Jerry, Author's personal notes)

If you believe that the current system of education is correct. Students who appear to be slow at reading or learning any subject using the current methods in general are considered disabled learners. Then yes I would be considered a disabled learner in that system.
I however do not think of myself as a disabled learner, disadvantaged maybe. I learn in a different way than the methods currently used throughout the education system.
(Pat, Author's personal notes)

Both Pat and Jerry do not see themselves as 'disabled', they see the educational system as established to assist people other than themselves. Thus they view themselves as 'disadvantaged' learners rather than 'disabled' learners.

Many students have similar experiences to Pat and to Jerry. Many children do not understand why they find it so difficult to learn in a regular classroom – they do not

understand that there are differences in learning styles. In a society such as Australia's that values conformity, to be a visual learner at school is to be an alien – a *Stranger in a Strange Land*. Teacher's can alleviate these feelings of not belonging by understanding and valuing the differences in learning technique and teaching to such children in a way that values the visual learner's style. It must always be remembered that visual spatial children grow into visual spatial adults who can look back at the school based learning with fondness or distrust. As Jerry surmises:

When the teaching methodology is based on words and numbers, not shapes, pictures and patterns. (visual learners become) frustrated with the whole educational process, andwant to leave it, or seek other ways to express ... knowledge in a manner in which we can best communicate. However, many (visual learners)... don't make the transition, and get an very embittered view of the educational process. (Jerry, Author's personal notes)

As discussed earlier in the article it is possible to teach to visual learners in the regular classroom. When this is combined with the realisation that many children have visual learning capabilities, not just the ones branded 'disabled', there really is no excuse for implementation of at least some of the ideas explored in this paper. Teachers will find children that they had thought of as 'slow' or 'average' blossom and they will see the gifted visual learners gain confidence, motivation and willingness to participate. Perhaps then the term 'disabled' in relation to visual learners will be disbanded for something more like 'different learner'.

I will leave the final word to Pat who succinctly states:

Until the current methods are changed or modified the education system will continue to brand students that do not learn in the accepted manner as disabled, most of these students would benefit from a different method of teaching. (Pat, Author's personal notes)

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Appendix 1 ~ General Rules for Assisting Visual Spatial Learners

- Write directions on the board, on overheads or on paper
- Let them observe others before attempting new tasks
- Use visuals, overheads, draw pictures
- Demonstrate, don't just tell, use "hands-on experiences"
- Use fantasy; provide opportunities to use their imaginations
- Make information challenging; they do better with complexity and harder work
- Use discovery techniques; finding patterns; inductive learning, inquiry training
- Say their name loudly to gain their attention and touch their shoulder to get their attention when they do not hear you
- Use a sight approach to reading rather than phonics
- Use a visualisation approach to spelling:
- Teach them to type and let them type assignments on computer or word processor
- Use books rich in visual imagery to enhance interest and ability in reading
- Have them discover their own methods of problem solving eg instead of teaching division step-by-step, give them a simple division problem, with a divisor, dividend and quotient. Have them figure out how to get that answer in their own way. Don't ask them to show you their steps. When they succeed, give them a harder problem with the solution already worked out and see if their system works.
- Give them advanced, abstract material, even when they have difficulty with easy, sequential material.
- Avoid rote memorisation; use more conceptual approaches.
- Avoid timed tests. If they are required, allow them to take them at home or alone, trying to beat their own past record, rather than competing with their classmates.
- Teach to their interests e.g hobbies, after-school interests.
- Engage them emotionally through encouragement.
- Use humour frequently in instruction (not sarcasm).

- Use adaptive techniques to assist them in devising methods of compensating such as:
 - a) word processing with a spelling correction program
 - b) use earphones to block out noise when studying
 - c) make lists to help remember things
 - d) practise visualisation as a memory aid
 - e) use rhythm and music as a memory aid
 - f) tape record lectures instead of taking notes
 - g) estimate answers before calculating
- Get their attention; talk louder, faster, animatedly with gestures; do not speak in slow monotonous, it can put them to sleep
- Use music and rhythms; sing, chant and dance material to enhance memory
- Make them winners e.g improve their personal best
- Use emotionally charged material; show them that you care about them; see their under-achievement as a temporary condition not a permanent one

(Source: Linda Silverman www.giftedservices.com.au,)

Appendix 2 ~ Multiple Intelligences

Gardner suggested that each individual possesses a unique blend of *seven intelligences*. While the intelligences are discrete in terms of their existence in the brain, 'real-world' activities inevitably involve a blend of the intelligences. It is unlikely that the intelligences can operate in pure form in everyday functioning. The seven intelligences may be described as follows:

Linguistic intelligence is the ability to use the language to excite, please, convince, stimulate or convey information.

Logical-Mathematical intelligence is the ability to explore patterns categories and relationships by manipulating objects or symbols and to experiment in a controlled, orderly way.

Spatial intelligence is the ability to perceive and mentally manipulate a form or object, and to perceive and create tension, balance and composition in a visual or spatial display.

Musical intelligence is the ability to enjoy, perform or compose a musical piece.

Bodily-Kinaesthetic intelligence is the ability to use fine and gross motor skills in sports, the performing arts, or arts and crafts production.

Intrapersonal intelligence is the ability to gain access to and understand ones inner feelings dreams and ideas.

Interpersonal intelligence is the ability to understand and get along with others.

(Source: Hatch and Gardner (1980). New Research on Intelligence. *Learning* 88. pp36-38) quoted in Vialle and Perry, 1995, p12)