EARLY YEARS
RESEARCH ASSOCIATION
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A Word from the EYRAS President

Covid -19 has caused an increase in life stressors (such as loss of livelihoods, social isolation and love ones etc) resulting in a significant increase in mental health issues). The global pandemic has stretched nations' healthcare system and resources to protect citizens and overcome unprecedented yet overwhelming challenges. From swift-regular lock downs, rationing and distribution of limited face masks at a time to mobilization of healthcare professionals and rolling out mental wellness measures to help people to move on with their life, there is a major shortage of healthcare professionals.

World Health Organization (WHO) mentioned that global prevalence of anxiety and depression increased by a massive 25%. Institute of Mental Health of Singapore did a survey in 2021 and evaluated that 8.7% of the Singapore population met the criteria for clinical depression, while 9.4% met the criteria for anxiety and 9.3% met the criteria for mild to severe stress. However, Singapore still fared better in comparison with the prevalence rates of other countries/ cities as tabled below from their report.

Countries	Depression rate	Anxiety rate
India	38.9%	43.0%
Australia	27.6%	21%
China	12.0% to 24.1%	7.1% to 35.1%
Hong Kong	19.8%	14.0%
Japan	17.3%	10.9%
Singapore	8.7%	9.4%
Malaysia	8.0%	Not available
Vietnam	4.9%	7.0%

The studies are not directly comparable due to differences in study period.

Children with special needs have not been spared. They have experienced social isolation as their therapy routines were suspended during lock downs or Covid restrictions. This change in routine could often be a significant challenge for children with ASD. This has led the vulnerable group to develop anxiety and mental abnormalities during the quarantine period. Children with ASD were reported by their parents to show changes in behaviour mostly caused by anxiety, irritability, obsession, hostility and impulsivity. Parents also reported that there are more negativity than positivity impact in terms of on emotional management and learning.

Although the consequences of the pandemic are still unknown, Covid-19 has permanently changed our life style and behaviour. Parental knowledge and awareness of potential health issues that their children may face continues to be crucial for their well-being. Understanding from the parents, early diagnostic assessment and intervention help to buffer the stressors that the children may encounter. The support provided by the sensitive adults and professional therapists establish sound resilience in the affected children. Adults should be cautious about handing down their own faced daily stressors to their children.

I hope this issue of JEYR continues to provide the necessary knowledge and awareness to the readers. I would like to show my sincere appreciation to the writers who are generous in contributing their insightful articles. I would also like to show gratitude to Dr Guo Hui XIE for his effort in compiling them.

Meng Kiat TAN
Honorary President
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A Retrospective Evaluation of an Adult with Attention-Deficit/Hyperactivity Disorder (ADHD) in Childhood: A Case Study

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Abstract
Many adult clients have repeatedly asked the authors if the onset of attention-deficit/hyperactivity disorder (ADHD) could happen during the adulthood. The current understanding of the condition of ADHD is that it is a neurodevelopmental disorder whose onset takes place in childhood before the age of 6 years. The triad of impairments in ADHD consists of inattention, hyperactivity and impulsivity. The exact cause of ADHD remains evasive and hence, it is unknown. However, current medical studies have strongly indicated neurogenetic causality pinpointing to its constitutional origin and development impairment of the executive functioning cortex in the brain. In other words, ADHD tends to run in families though environmental factors and lifestyle may worsen or improve the symptoms rather than causing the disorder. In this short paper, the authors have chosen to focus on a case study of a male vicenarian's ADHD whose onset purportedly happened during his emerging adulthood phase.
Key Words: Adult-ADHD, Attention-Deficit/Hyperactivity Disorder (ADHD), Childhood-ADHD, Wender-Utah Rating Scale

Introduction

The question of whether there is an adulthood onset of attention-deficit/hyperactivity disorder (ADHD) has often been asked by many who feel "scattered, inattentive, restless, or overwhelmed know if ADHD is to blame?" (Low, 2020, para. 1). Such is an issue has posed a challenge to those who do not feel they exhibited ADHD symptoms when they were younger, since most often than not, the behavioral disorder is diagnosed in the childhood. Interestingly, due to the nature of the authors' job working with adults with special needs, they have been repeatedly asked by their clients if ADHD could occur in adulthood or if there was ever such a condition of ADHD-adulthood onset? One explanation given by the authors to their adult clients is that when they were younger, such a condition could have been missed out during its onset or that the progression of the childhood disorder was not properly observed or monitored. Another explanation is misdiagnosis or underdiagnosis. Hence, when ADHD-like symptoms appear later in life, many have mistaken them for the possibility of ADHD-adulthood onset subtype!

Returning to the question asked if an adult can get ADHD, the short answer is a straight NO! Low (2020) has stated plainly that 'adults don't suddenly get ADHD' (para. 7). In fact, several symptomatic criteria must first be met in childhood before the age of 12 years. Technically speaking,

this means ADHD does not occur in adulthood. That is to say that if an adult develops ADHD, s/he must also have it as a child. It is highly possible that an individual may not have been identified or diagnosed with the disorder until much later in life. Conversely, if a person 'did not present these symptoms as a child, then … current symptoms may be the result of something else" (Low, 2020, para. 8), and it could be indicative of one of the following issues: depression disorder, anxiety disorder or mood disorder.

ADHD: What is it?

The term attention-deficit disorder (ADD) was first introduced in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III; American Psychiatric Association, 1980), which was the reference manual used to diagnose mental conditions in the United States. In 1994, the definition of ADD was revised in the fourth edition of DSM to include three subtypes: (i) the predominantly hyperactive-impulsive type; (ii) the predominantly inattentive type; and (iii) the combined type (in the current DSM-5, these are now referred to as 'presentations').

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by excessive amounts of the following signs and symptoms – (i) inattention, (ii) recklessness, (iii) hyperactivity that can evolve gradually into inner restlessness in adulthood, and (iv) impulsivity that

are often pervasive, impairing, and otherwise age-inappropriate (DSM-5, American Psychiatric Association, 2013, p. 59-65; also refer to ICD-11, World Health Organization, 2018, under the diagnostic code: 6A05 Attention-Deficit/Hyperactivity Disorder; for more information, also see Foreman, 2006; Mayes, Bagwell, & Erkulwater, 2008; Parrillo, 2008, p. 63;). There are also those individuals with ADHD who struggle with challenging emotional regulation (also known as emotional dysregulation disorder; see Retz et al., 2012, for detail) and have executive dysfunction (Barkley, 210).

Moreover, there are comorbidities of ADHD associated with other mental disorders (including depression disorders, anxiety disorders, bipolar disorders, and personality disorders) (Ray & Hinnant, 2009) and substance use disorders (Zulauf et al., 2014), which can cause additional impairment, especially in modern society. Although people with ADHD struggle to stay focused in a given activity or be on-task, they are not particularly interested in completing the given activity. However, they are often show an unusually prolonged and intense level of attention for activities that interest them or they find such tasks rewarding (Katzman et al., 2017). This has been known as hyperfocus (Hupfeld, Abagis, & Shah, 2019; Phillips, 2018).

To determine if an individual has ADHD, symptoms of the condition that cause problems should take place in at least two settings (e.g., in school or home, during work or leisure time) for a duration of six months or more. In children, problems in paying attention during lesson in class often may result in poor academic performance. With the new fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the age of onset criterion for ADHD has been changed from, 'some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years' (DSM IV-TR;

American Psychiatric Association, 2004), to 'several inattentive or hyperactive-impulsive symptoms present prior to age 12 years' (DSM-5; American Psychiatric Association, 2013). According to Sanders et al. (2019), '[T]he modification thus comprised two changes: increasing the age of onset of symptoms from before 7 years to before 12 years, and removing the requirement for the "onset of symptoms causing impairment" to the "onset of symptoms". Both changes widen the definition of ADHD and potentially lead to the widening of treatment recommendations' (p. 2).

According to the US-based National Resource Center on ADHD (2008), '[T]here is no single medical, physical, or genetic test for ADHD. However, a diagnostic evaluation can be provided by a qualified mental health care professional or physician who gathers information from multiple sources' (p. 2). Currently, the ADHD diagnostic assessment for individuals (i.e., children, adolescents and adults) with ADHD can be quite challenging. Bressler (2022) argued that the challenge with diagnosing ADHD is 'that the characteristics associated with the disorder – such as difficulties with focusing, shifting/dividing attention, managing frustration, organization/poor time-management, working memory, and staying engaged – are common symptoms that could have a breadth of etiologies' (para. 10). Arguably, the well-regarded gold standard approach in diagnosing ADHD is to rely on an evidenced-based assessment that adheres to the diagnostic criteria listed in the DSM-5 (American Psychiatric Association, 2013) 'along with the inclusion of multi-informant/multimethod methods … that should incorporate empirically validated research and, when possible, test data about key clinical populations to guide and increase confidence with clinical impressions' (Bressler, 2022, para. 14). Table 1 below shows examples of ADHD assessment tools for children and adults.re Examples of ADHD testing tools for adults are

Table 1. Assessment Tools for ADHD in Children and Adults

Children	Adults
• Behavior Assessment System for Children (BASC-3)	• Adult ADHD Self-Report Scale (ASRS-v1.1)
• Child Behavior Checklist (CBCL)	• Barkley Adult ADHD Rating Scale-IV (BAARS-IV)
• Connors Comprehensive Behavior Scale (CBRS)	• Conners Adult ADHD Rating Scales (Conners-3, CAARS)

Is there an Adult-ADHD?
The focus of this paper is on the adult-ADHD (A-ADHD for short): 'a mental health condition with a short attention span, hyperactivity and socio-occupational dysfunction' (Focus Medica, 2022, para. 1). Its symptoms emerge during the early

childhood phase and continue into adulthood phase. In some cases, the condition of ADHD is not clearly recognizable or properly diagnosed until the person is an adult. "Adult-ADHD symptoms may not be as clear as ADHD symptoms in children" (Mayo Clinic, 2022, para. 2). In adults, though the

degree of severity or frequency of occurrence of hyperactivity may decrease, the struggle with impulsiveness, restlessness and difficulty paying attention may persist.

According to Katzman et al. (2017), A-ADHD is associated with "profound functional and psychosocial disability, leading to serious personal and societal costs" (p. 2). Attentional dysfunction is the most prominent feature in the condition and it is also found to be correlated with impairment in focused and sustained attention (Bálint et al., 2009). Those with A-ADHD also suffer neuropsychological challenges associated with deficiencies in inhibition (Murphy, 2002; Ossmann & Mulligan, 2003), working memory (Alderson et al., 2013; Ossmann & Mulligan, 2003), executive functioning (Boonstra et al., 2005; Spencer et al., 2008), decision making (Mowinckel et al., 2015), and emotional dysregulation (Retz et al., 2012). A-ADHD also produces negative consequences for adults' self-esteem and the quality of interpersonal relationships, with both co-workers or colleagues and significant others (Das et al., 2012; Kirono et al., 2015).

A Case Study of an Adult with A-ADHD
This is a case study of a foreign male student, YX, in his mid-twenties, who had just completed his final year studies at a private college, during the time of this writing. YX made a self-referral to a counselor (via e-counseling) for help through a friend's recommendation after being nagged by his ageing parents for already more than a decade for his 'weird' behavioral problems: being impatient, easily frustrated or irritated, frequent outbursts of anger or short temper, and mood swings – all these challenges are suspected to be caused by his poor impulse modulation.

During YX's internship at a local F&B company during the Covid-19 pandemic in his final year, he complained of having problems in focusing and prioritizing the many different tasks he was given. As a result, he had missed project or assignment deadlines and forgotten meetings or social plans. He told the counselor that he had several past broken or unstable relationships, low motivation to perform well in both studies and work, and suffered poor self-esteem and depression, which he never told his parents for fear of causing them to worried about him.

Through e-counseling, YX was asked if he had ever seen a psychologist or a medical practitioner when he was a child for any learning or behavioral problems; his reply was that he was not aware if he

did. His parents had also been consulted (via online) and their answer was a definite 'no.' What they could recall of YX during his school years was that he was … rather disorganized or messy with his things, poor in planning his study schedule, easily stressed, frustrated or anxious, never completed his homework on time or showed poor time management, quick tempered, and trouble with multitasking.

Without any psychological or medical assessment done previously or psychoeducational report available, YX could not be confirmed to have ADHD. In consultation with YX's counsellor via online, the authors decided that the best way to find out if the client had suffered from an undiagnosed condition of ADHD when he was a child was to administer the 25-item Wender-Utah Rating Scale for ADHD (WURS-25; Ward, Wender, & Reimherr, 1993). The WURS-25 was chosen for administration because it is an appropriate screening tool to aid in the retrospective diagnosis of childhood-attention-deficit/hyperactivity disorder (C-ADHD) in adults. It is an adapted version of the self-report instrument designed to retrospectively assess childhood-ADHD symptoms, based on the Utah criteria (see Ward, Wender, & Reimherr, 1993, for detail; Wender, 1971). Originally, it consisted of 61 items, but was arbitrarily reduced to 25 items that showed the greatest mean difference between patients with ADHD and controls. Ward et al. (1993) reported a sensitivity and specificity of 96% for a cut-off score of 36, and a sensitivity of 86% and specificity of 99% for a cut-off score of 46. Both the long and the short form of the English version of WURS-25 showed good test–retest reliability and internal consistency (Rossini & O'Connor, 1995; Stein et al., 1995). WURS-25 has been translated into several languages, and validation studies have shown similar psychometric properties to those reported by Ward et al. (1993; see also Fossati et al., 2001; Kivisaari et al., 2012; Oncu, Olmez, & Sentark, 2005; Retz-Junginer et al., 2003; Rodriguez-Jimenez et al., 2001; Stein et al., 1995). A Swedish translation of WURS-25 is available and frequently used. However, no validation study of the Swedish version has been published (Kouros et al., 2018).

Table 2 below shows YX's scores in the WURS-25 administration. He scored 53 on the WURS above the cutoff score of 46. The results suggested that YX had a retrospective C-ADHD. However, he might also have other hidden conditions not identified yet.

Table 2. WURS-25 Results	
Scores	
WURS Score	53
	(based on 25 items associated with ADHD
Cutoff Score	46
	(Predictive having childhood-ADHD)
Maximum Score	100
Minimum Score	0

As mentioned earlier, findings from the study conducted by Ward, Wender, and Reimherr (1993) suggested a cutoff score of 46 or higher correctly identified 86% of the patients with ADHD, 99% of the normal subjects, and 81% of adults with depression. In the case of YX, his WURS-25 results indicated that he had suffered from a retrospective C-ADHD when he was young. Now in his adulthood, there is a possibility that he exhibits symptoms of A-ADHD with depression (Seymour & Miller, 2017). According to Seymour and Miller (2017), '[E]pidemiological studies show the median odds ratio of cooccurring ADHD and depression is 5.5 (95% CI 3.5–8.4) (Angold, Costello, & Erkanli, 1999)' (p. 2). In addition, YX was also noted to display executive dysfunction – a common ADHD comorbidity (also known as executive function deficit or disorder) – when the brain has a hard time with the skills of attention, memory, flexible thinking, and organization or time management (Sonuga-Barke et al., 2008). However, it is not within the scope of this paper to delve into it.

Like A-ADHD, C-ADHD is a neurodevelopmental disorder whose onset occurs during the period of childhood. In other words, the condition can affect the manner an individual behaves and learns. Its classical triad of symptomatic impairments are inattention, impulsivity, and hyperactivity. Like with any condition, symptoms can vary from person to person. Each individual with ADHD has different needs with some requiring more support, while others need less. Having any of these symptoms does not always mean that an individual has ADHD.

Conclusion
At the beginning of the paper, the authors have reiterated that adults do not suddenly develop the condition of ADHD (see Low, 2020, for detail), but must fulfil the DSM-5 criteria for an ADHD diagnosis, i.e., key symptoms that cause impairment must be present in childhood before age 12. Therefore, ADHD does not develop in adulthood. In other words, when an individual has ADHD as an adult, s/he also had it as a child. This means that A-ADHD is more of a misnomer.

In summary, the authors could say that XY has ADHD since childhood but the condition was not identified until when his case was taken up by a counsellor who referred him for a proper ADHD assessment to be done.

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Visuospatial Recognition of Words for Children through Concrete Poetry

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Abstract

Concrete poetry – a rigidly defined sub-genre of visual poetry – creatively operates with an awareness of graphic space as its structural agent – an additional expressive element – by arranging words in non-linear patterns across a given page. It encompasses the material dimension of language, its visual, acoustic and semantic aspects to create autonomous linguistic realities, in which the perceptual qualities of the signifiers or the signs instead of just merely the signified (i.e., the concepts they refer to) are emphasized. Its key emphasis is on structure, method, functional construction and a rejection of subjective expression. It draws on both textual and visual modes of signification that result in a hybrid between text and image. Hence, readers of concrete poetry are compelled to oscillate between reading and viewing the modes. Although concrete poetry is today considered as outdated, it has also attempted to respond creatively to the rapid changes in the visual media landscape, as in the frequent use of emoji faces, and for conceptual affinities to emerging technical languages as used in WhatsApp emoticons and SMS abbreviations.

Key words: Concrete Poem, Pattern Poem, Shape Poem, Words, Word Recognition

Introduction

Concrete poetry has its roots in the works of literature coupled with, enhanced by, and/or written as a series of images (YourDictionary, 2016, para.3) from the times of the medieval writers such as Geoffrey Chaucer (b.1343-d.1400) of *The Canterbury Tales* fame. Concrete poetry coupled poetry with images but the form was lost over time. Over the 20th century AD, a number of established poets such as Ezra Weston Loomis Pound (b.1885-d.1972) and E.E. Cummings (b.1894-d.1962) attempted to depict visually the significance of the words in their poems.

Concrete poetry has become a notable movement since the World War II. In fact, during the early 1950s, concrete poetry emerged simultaneously in Brazil in South America as well as in Germany and Sweden in Europe, and then it spread promptly to other European countries as well as the United States. According to Schaffner (2010; cited in Clüver & Corrêa, 2011), the Swiss-Bolivian poet Eugen Gomringer and the Brazilian Noigandres poets have been honored as the founding fathers of concrete poetry. Several well-known poets including Ian Hamilton Finlay (b.1925-d.2006), John Hollander (b.1929-d.2013) and Stéphane Mallarmé (b.1842-d.1898) as well as more recent poets such as David Schonodelmeyer, Courth Smith and Paula Claire have written successful concrete, pattern and/or shape poems. Concrete poetry reached its peak in the 1960s, and gradually fizzled out in the early mid-1970s.

There are two representative collections of concrete, pattern and shape poems: *An Anthology of Concrete Poetry* edited by Emmett Williams (1967) and *Concrete Poetry: An International Anthology* edited by Stephen Bann (1967). In addition, readers, who are interested to explore more about concrete poetry, should read *Concrete Poetry: A World View* edited by Mary Ellen Solt (1970) and a more recently published *Concrete Poetry: An International Perspective* edited by Claus Clüver and Marina Corrêa (2011).

What is Concrete Poetry?

Concrete poetry can be regarded as a more rigidly defined sub-genre of visual poetry. It creatively operates with an awareness of graphic space as its structural agent – an additional expressive element – by arranging words in non-linear patterns across a given page. According to Clüver and Corrêa (2011), concrete poetry draws on both textual and visual modes of signification that result in a hybrid between text and image. Hence, readers of concrete poetry are compelled to oscillate between reading and viewing the modes.

Concrete poetry encompasses the material dimension of language, its visual, acoustic and semantic aspects to create autonomous linguistic realities, in which the perceptual qualities of the signifiers or the signs instead of just merely the signified (i.e., the concepts they refer to) are emphasized (Clüver & Corrêa, 2011). Its key emphasis is on structure, method, functional construction and a rejection of subjective expression. Although concrete poetry is today considered as outdated, it has also attempted to respond creatively to the rapid changes in the visual media landscape, as in the frequent use of

emoji faces, e.g., J and L, and for conceptual affinities to emerging technical languages as used in WhatsApp emoticons, e.g., ; (and :) and SMS abbreviations, e.g., LOL, b4, 10Q.
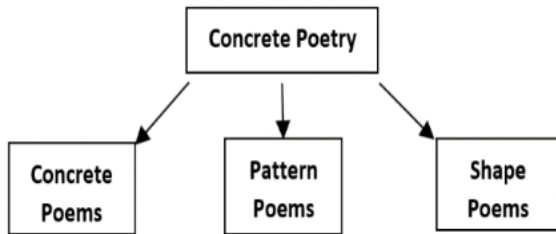

Figure 1. The three types of concrete poetry

Concrete Poems

A concrete poem is defined as "a poem that forms a picture of the topic or follows the contours of a shape that is suggested by the topic" (Pravada, 2007, p.1). It "does not have a title, line, rhyme, rhythm and even stanza" (Chia, 1988, p.5). The letters in a given word (usually is a noun, verb or adjective) are shaped in such a way that they form the picture that depicts the meaning of that word. Chia (2006) has defined concrete poem more narrowly by referring to a word whose string or sequence of constituent letters take the form of the referent that the word names. He argues that a concrete poem can come in various shapes (e.g., oval, star, triangle), sizes (e.g., big, small, dot), colors (e.g., blue, green, yellow), textures (e.g., coarse, jaggy, smooth) and even flavors (e.g., lavender, rosewood, vanilla) in terms of smell and taste. Examples of poets who have created concrete poems include Ian Hamilton Finlay, Simon Cutts and Stuart Mills.

Here is one example of a concrete poem of a goldfish that I have created:
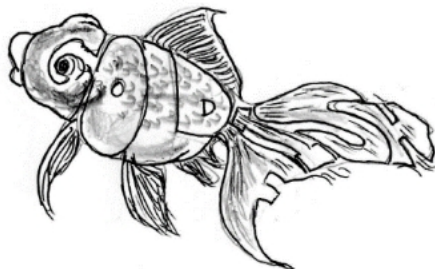
Here is yet another example of a concrete poem created by Aaron Guo (cited in Chia, 1988, p.6):

Personally, I would subdivide concrete poetry into three forms or categories: concrete poems, pattern poems and shape poems (see Figure 1).
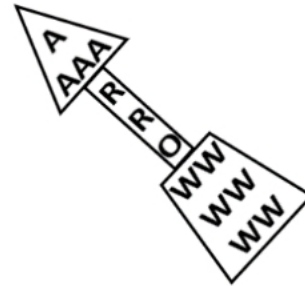

Pattern Poems

A pattern poem is also known as "figure poem, shaped verse or *carmen figuratum*, i.e., a verse in which the typography or lines are arranged in an unusual configuration, usually to convey or extend the emotional content of the words" (Encyclopedia Britannica, 2016, para.1). Some of the best pattern poems can be found in the Greek *Anthology* that has included some excellent pieces composed between 7th century BC and the early 11th century AD. Examples of poets who had composed pattern poems include the English metaphysical poet George Herbert's (b.1593-d.1633) *Easter Wings* of the 16th century AD, the French symbolist poet Stéphane Mallarmé's (b.1842-d.1898) *Un Coup de dés* (1897; "A Throw of Dice") and the well-known American poet E.E. Cummings' ((b.1894-d.1962) *O sweet spontaneous earth*.

Here is an example of a pattern poem created by Ieky Harto (cited in Chia, 1988, p.6):

```
S T R E T C H
S T R E T C H
S T R E T C H
S   T   R   E   T   C   H
S   T    R    E    T    C    H
S    T     R     E     T      C      H
S      T      R      E      T       C       H
```

On the next page is an interesting sentence taken from a children's storybook – *The fat hippo looks at the crab flying two balloons* – that uses content words, i.e., fat, hippo, looks, crab, flying, two, and balloons, to create concrete poems as shown (see the next page):
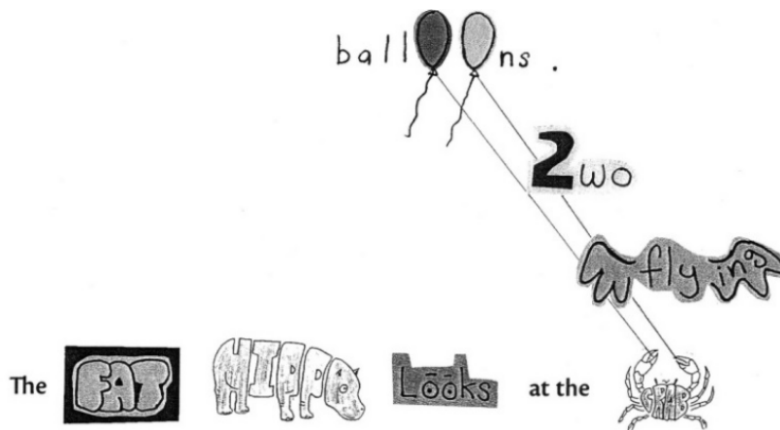
Notice that the two balloons are flying up into the air while the crab tries to hold tight to the strings tied to the two balloons while the hippo looks at what is happening. The hippo and the crab are on the ground while the two balloons are flying into the air. There are two patterns you can see here. The first pattern involves the words at the ground level: The fat hippo looks at the crab. The second pattern involves the words flying upwards: flying 2wo (two) balloons.

Below is a third example of a pattern poem – *Suddenly came a Typhoon* – with words repeated in a reverse sequence, and it is written to shape like a typhoon. I have re-illustrated it using ovals repeatedly to make them appear as if they are spiraling upwards to represent the typhoon. This poem can be considered as a hybrid of pattern and shape poems that I created back in 1988 (see Chia, 1988, p.10):
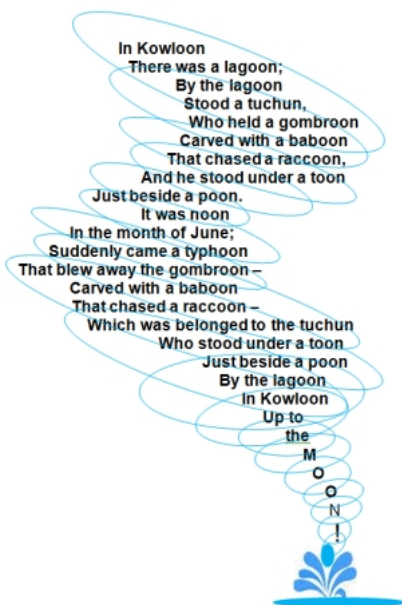
Shape Poems

A shape poem resembles a concrete poem but it can contain more than just one word or a phrase. It is shaped the same as the object that the poem is depicting. In other words, "[A]s the name implies, a shape poem has to do with the physical form of the words on the paper" (YourDictionary, 2016, para.1). According to YourDictionary (2016), the meaning of such a poem is very much impacted by the word, the physical form that the word for the shape poem takes, writing style and literary devices. When the content and the form of the word are put together, they help "to create one powerful effect in the field of such poems" (YourDictionary, 2016, para.1). Some good examples of shape poems are Mary Ellen Solt's *Forsythia* and *Lilac*, Dorthi Charles' *Concrete Cat* and David Schonodelmeyer's *Butterfly*. It is Schonodelmeyer's shape poem *Butterfly* that impresses me most, using phrases like "it floats by" and "it flutters high", making the poem really come to life! Another of my favorite shape poem is *The Mouse's Tale* written by Lewis Carroll in the shape of a mouse's tail! Other good examples of such poems can be found in John Hollander's *Idea: Old Mazda Lamp*, Robert Yehling's *Uplifting* and Dylan Thomas' *Vision and Prayer*.

Here is one example of a shape poem of an "earthworm: a burrowing annelid worm" that I have created:

On the next page, a second example of a shape poem of a pizza I created (see Chia, 1988, p.10):

IS DELICIOUS!

Here is a third example of a shape poem of a Christmas tree that Grace Chia (2008) has created:

HARK
HARK
HARK
HARK
HARK
HARK
HARK

"Christ is born today"
Hosts of heaven declared right away.
"Rejoice, everyone, rejoice,
Immanuel (God with us) is here to stay.
Star of Bethlehem will show you the way.
The shepherds in the field and
Magi – the three wise men – from lands of faraway
Announcing their visit to worship Him and pray
"Saving grace of God: His Son is born today."

What are Words?

Concrete poetry involves a creative play of words and hence, words play an important role in creating concrete, pattern and shape poems to express their meanings explicitly. It is important for us to know and understand everything about words and what they are all about, especially in recognizing, identifying, discriminating and/or differentiating them from others.

A word is the smallest linguistic unit that can exist on its own in spoken and written language, though its meaning will be determined by the context in which it is found (Chia, 1998). Linguistically speaking, a word is composed of a lexeme – an abstract unit – that may have or not several inflected forms, e.g., the word *give* belongs to the class of verbs with the following inflected forms: *gives*, *given*, *gave*, *giving* and *gie* (a Scottish variant).

A word consists of three interactive elements: orthographic (letters), phonological (sounds) and semantic (meaning) elements (Chia, 1996). Briefly, the orthographic element has two sub-elements: (i) logographic features (i.e., letter shapes and sequencing), and (ii) spelling rules and conventions. For example, the word *cat* is made up of three letters (orthographic element) and is spelled *c-a-t* in that consonant-vowel-consonant (CVC) order with *c* at the beginning, *a* in the middle, and *t* at the end. The initial consonant *c* is

pronounced /k/, the middle short vowel *a* is pronounced /æ/ and *t* is pronounced /t/ (phonological element). Finally, the word *cat* can mean different things in different sentential contexts. For example, the *cat* in this sentence – The cat caught a mouse – means a feline, while in this other sentence, the *cat* in – The prisoner-of-war let the cat out of its bag to the interrogator – means to tell a secret.

In order to recognize a word, a child must be able to spell out the word in terms of its constituent letters spoken in their respective names, i.e., converting the word into its letters as seen in print, or say the letters in their correct sounds, i.e., pronouncing the individual letter sounds and then blending them to say the word as an entity. To be able to perform the task of word recognition, the child must possess abilities in visual discrimination and spatial perception. In other words, visuospatial perceptual processing is essential in word recognition in addition to visual-auditory perceptual processing.

According to the online Dictionary.com, the term *visuospatial* consists of two words *visuo* – a prefix referring to vision or relating to seeing or sight – and *spatial* – a word referring to space or having an extension in space – and together it means "pertaining to perception of the spatial relationships among objects within the field of vision" (Dictionary.com, 2016).

Word decoding involves word perception, which, in turn, involves word recognition/identification and phonetic analysis. Word recognition and word identification are two cognitive processes that occur during the process of word perception, but only one of them can take place at any one time in word decoding process. In word identification, a listener/reader deals with an unknown word, but word recognition involves a word previously met in print. Manzo and Manzo (1994) have defined word recognition as a reader's attempt to identify a word quickly with little attention to letter-to-sound association. This process depends heavily on visuospatial or eidetic imagery, i.e., "the ability to hold an image in the short-term memory while physically moving past it to other words or images in the working memory, to test to see if the word should be called one thing or another" (Chia, 1998, p.14). In word recognition, a reader depends on two additional aids – the most distinguishing features of the word (Gibson & Levin, 1975) and the context in which it is used. According to Marchbanks and Levin (1965), every word has its special distinguishing features, i.e., its configuration or shape, e.g., *line* is shaped like the letter L while *sail* is shaped like a reversed ⌐ or *pine* is shaped like an inverted Γ. Concrete poetry offers that special

visuospatial feature to aid in word recognition as well as word identification or discrimination.

Word discrimination comes into play when a reader notices the differences in words, especially in the visual sequencing of constituent letters and outlines, overall shapes and/or sounds (Harris & Hodges, 1995). For example, the word *lamp* looks and sounds different from *lamb* and *lame*. Word discrimination also involves letter discrimination, letter omission/addition and letter sequencing, e.g., *three/there*, *stair/star/start/*, *stop/pots*. As a result, word meanings will change as words change their forms. Concrete poetry involves word decoding skills through word recognition, identification and discrimination in order to highlight the meaning of a word explicitly in its visuospatial or eidetic form.

The Three Perspectives on Concrete Poetry

As mentioned earlier in the introduction, concrete poetry reached its peak in the 1960s. It began to fizzle out in a gradual manner in the early mid-1970s. In other words, "[T]he moment of concrete poetry is already past" (Chia, 1993, p.41). However, there are three perspectives we can take to examine the usefulness of concrete poetry today.

Firstly, from the literary perspective, concrete poetry can be seen as "an episode in the continuing assertion of an internationalist *avant-garde* that has sought to break with the past and establish formal structures reflecting the scale of alteration that technology has unleashed on the world" (Ousby, 1988, p.212).

From the pedagogical perspective, concrete poetry offers teachers in mainstream schools a stimulating technique to introduce poetry to create interest and excitement in their students. Moreover, there are four main goals for teaching concrete poetry in schools. According to Chia (1991), concrete poetry "serves to increase visuospatial awareness of shape, size and physical layout of letters that form a meaningful word; secondly, it allows the meaning of a word to be expressed explicitly through its shape, size and physical layout of its letters; thirdly, it enhances eidetic memory for word shapes so as to enable an individual to write recognizable words pertinent to written needs; and lastly, it provides the individual with a channel for his or her creative expression" (p.24).

When concrete poetry is taught in class, the key emphasis is on the visuospatial appearance of letters. In other words, the following factors must be noted in creating a concrete, pattern or shape poem (Chia, 1991):
- The shape of each letter in a chosen word;
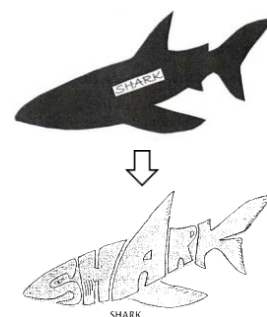- The size of each letter in the word; and
- The physical layout of all the letters in the word.

From the *heilpädagogical* perspective (referring to special education), i.e., a German term which means "to lead by assisted teaching", concrete poetry can offer a way to help children with special needs to learn to recognize, identify, discriminate and differentiate letters seen in words as well as to derive correct meanings explicitly from these words. A few studies (e.g., Chia, 2006; Chia, Wong, & Ng, 2009; Poh, 2010) have been done using concrete poetry to teach word recognition and reading comprehension to children with special needs, especially those with language delay, hyperlexia and autism spectrum disorder.

Creating Concrete, Pattern & Shape Poems

As a pedagogical strategy, concrete poetry provides teachers a stimulating and creative means to enhance word recognition and word knowledge (explicit vocabulary) in their students. When creating concrete, pattern and/or shape poems, students should be guided to take into consideration visuospatial appearance of constituent letters found in each word, the physical layout of the letters that constitute the word as well as the pictorial representation of the word. By transforming its pictorial representation and symbol, a word can be created as a concrete poem.

Concrete poetry as a heilpädagogical strategy can help students with special needs (e.g., those with language delay) to make meaningful association between target words and their appropriate referents. This means that a targeted word is drawn in some kind of a form to explain the thing it represents in an explicit way. In this way, students with special needs will be able to make sense of the words they encounter in word recognition using concrete poetry which becomes a means for these students to easily conceive and make sense of the words they read or see. I have illustrated this explanation with an outline of the cutout in a shape of a shark and then transforming it by using its letters S-H-A-R-K to form a concrete poem of a shark.
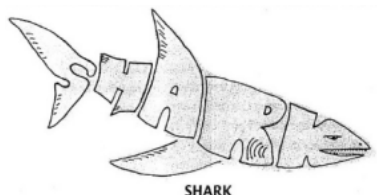
In creating the concrete poem of a shark using the uppercase letters S-H-A-R-K, three features are being carefully considered: (1) the shape of each letter in a word, (2) the size of each letter in a word, and (3) the physical layout of all the letters in a word when creating a concrete, pattern or shape poem (Chia, 1996). As a result, students are allowed to pay attention to the visuospatial appearance of letters in a selected word during the process of creating the concrete, pattern or shape poem. It benefits those students with language delay as they do not have to be overly concerned about lines, rhyme, rhythms, title etc. With the focus on the visuospatial appearance of letters, creating such poems may stimulate students' thinking in terms of how the shapes, size and physical layout of letters can be used to construct these unique poems, and how these can influence the final form of the poems. For instance, the shapes, size and physical of letters of a word ("SHARK") change when they are fitted on different sides of cut-out as shown below.

THIS …
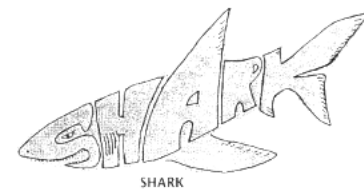
SHARK

OR … THIS …

SHARK

Using the concrete poem of SHARK as my illustration here, students can recognize and understand almost at once the meaning of the word expressed explicitly through the various letter shapes, sizes and physical layout of the constituent letters. If all the words can be written in concrete, pattern and/or shape poems, they may enhance the students' understanding of the content in a storybook during story-reading, and subsequently improve their ability in comprehending. However, in reality, it is more difficult to create concrete poems out of functional and abstract words (e.g., a, an, the, of, if, hope, faith) than content and action words (e.g., tall, fat, snail, dive, run, elephant, love).

During a concrete poetry session in class, teachers and their students can always discuss how they can improve their word recognition and/or enhance their word knowledge. For instance, one way to do this is for teachers to provide their students with three parts of concrete poems in sequence, and ask them how effective these concrete poems are in passing messages or meanings that the creators of these poems intend to convey (Poh, 2010). This activity is based on the fact that visuospatial or eidetic forms of concrete poems provide self-explanatory meanings of words and passages in a given context. In other words, it suggests that stringing concrete poems together can provide the contextual meaning of a sentence.

There are three difficulty levels – basic, standard and higher – in creating concrete, pattern and/or shape poems. Based on these levels, teachers can decide on the appropriate difficulty level when teaching their students to create concrete, pattern and shape poems using words and their appropriate referents (see Table 1). Each level is influenced by the provision of words, forms, or both words and forms.

Table 1. Teaching strategy for each difficulty level (Chia, 1996)

Difficulty Level	Form	Word
Basic level	Given	Given
Standard level	Not given	Given
Higher level	Not given	Not given

At the basic level, words and forms are being given to the students by their teacher. This provides students with difficulties in word recognition or naming an opportunity to identify the pictorial representations of things and/or animals and say their names quickly, easily and accurately. As these students become more familiar with concrete poetry, word recognition and naming will improve

and teachers can proceed to the next difficulty level.

At the standard level, provision of forms is removed or not given at all. Students are given an opportunity or compelled to use their creativity to construct their concrete, pattern or shape poems and showcase their masterpieces. In fact, students with special needs should be given more

opportunities to tap on their own creative juice to come up with their own perceived concrete, pattern and/or shape poems. Here are some examples of such poems created by them (names are not mentioned to ensure their anonymity):

TALL   LŌŌK   [poem]

At the higher level, words are removed or not provided at all. This allows teachers to take into consideration their students' capability to create their own concrete, pattern or shape poems without being prompted in terms of what and how to produce. In other words, in knowing their students' capability level, teachers can now decide on the kind of resources (i.e., form, words, both form and word, or neither form nor word) to be provided. This benefits those with moderate language delay as the teaching strategy can be used to cater to their appropriate developmental levels rather than based on the typical developmental timetable.

Concluding Remarks

The underlying main goal of introducing and promoting concrete poetry as an approach (pedagogical or heilpädagogical) to teach word recognition and naming is more to bring joy and fun to students with or without special needs when learning new words. Both mainstream school and special school teachers can use concrete poetry to teach word recognition and naming by bringing relevance and meaning to their students. This suggests that as students find relevancy and purposefulness in the required learning of new and/or unknown words, they are more likely to be motivated to engage in the activity (i.e., creating concrete, pattern and shape poems) and, in some way, will help to enhance their performance in acquired learning of those words. With fun involved, the concrete poetry activity creates interest as well as motivates students with or without special needs to express their creativity in their acquired learning experiences as illustrated in Figure 2 below (see Chia, 2016, for detail).
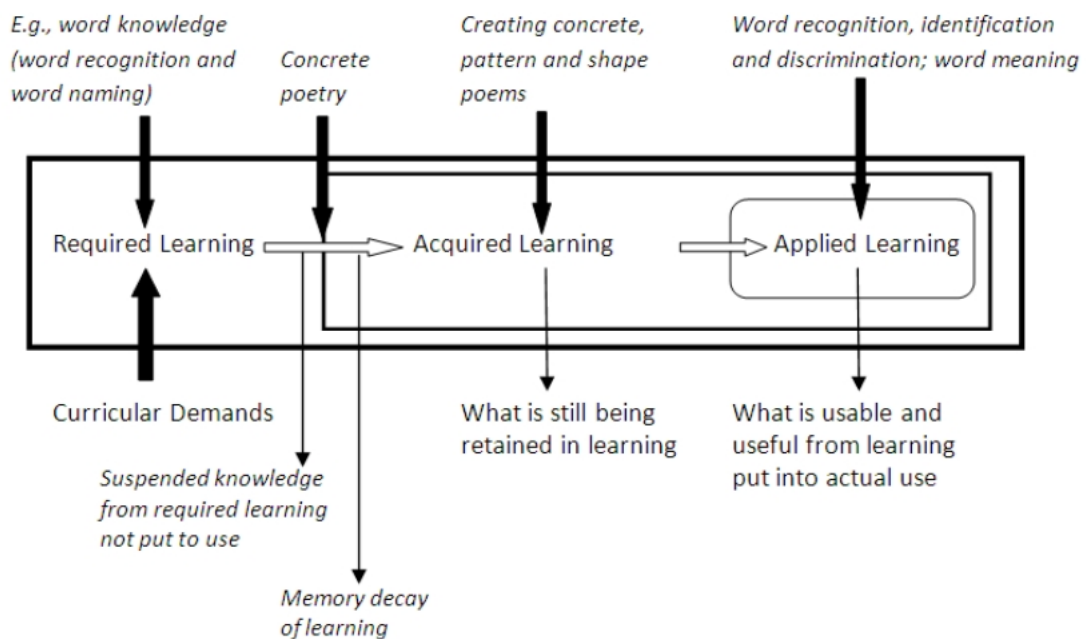
Figure 2. Learning Process from Required to Applied Phase

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Identifying Autistic Traits in Human Figure Drawings done by Children with Autism Spectrum Disorder (ASD): A Short Review of Five Selected Published Papers

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Abstract
Autism spectrum disorder (ASD) is a challenging, not yet fully understood, condition associated with neurodevelopmental, mental, or behavioral problems. Its onset takes place in the early developmental period (may not manifest until social demands exceed limited capacities) with persistent deficits in social communication and social interaction, and deficits in social-emotional reciprocity and social relationships. As a neurodevelopmental disorder, ASD impacts the development of the nervous system, leading to slightly different cortical function that, in turn, may affect cognition, conation, emotion, memory, and sensation. The effects of ASD tend to last for an individual's lifetime. Hence, it is important to assess a child for suspected ASD as early as possible so that appropriate follow-up intervention can be provided. For past four to five decades, many ASD-related assessment tools have been developed for the purpose of early identification, diagnostic evaluation and profiling. In this paper, the authors have chosen to review five selected published papers on human figure drawings done by autistic individuals in their attempt to find common autistic traits in these projective drawings to be used as indicators for ASD screening in children.
Key words: Autism Spectrum Disorder, Autistic Traits, Early Identification, Human Figure Drawing

Introduction

Autism spectrum disorder (ASD) or autism for short was originally known as childhood schizophrenia (Cantor, 1988; Cantor et al., 1982) and was often mistaken to be the result of cold parenting due to what was then known as the 'refrigerator mother' complex (Bettelheim, 1950, 1959, 1967). Later, according to Zeldovich (2018), it became 'a set of related developmental disorders, and finally as a spectrum condition with wide-ranging degrees of impairment' (para. 2). The diagnostic criteria of ASD have been changing through the past decades from the time when an Austrian-American psychiatrist and physician, Leo Kanner, first described it in 1943 (Camulli & Goh, 2018).

With the publication of the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III; American Psychiatric Association/APA, 1980), autism was established with its own separate diagnosis. It was then described it as a pervasive developmental disorder (PDD) in order to distinguish it from schizophrenia. With the subsequent release of the

DSM-IV (APA, 1994) and its revised edition of DSM-IV-TR (APA, 2000), autism was categorized as a spectrum disorder, which includes the following: Asperger Disorder, Childhood Disintegrative Disorder (also known as Heller Syndrome), Rett Syndrome, and Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS).

Throughout the decade of 1990s and the beginning of the first decade in the new millennium, researchers were focusing on the genetic identification of ASD. With the completion of the Human Genome Project in 2003, according to Zeldovich (2018), many research studies (e.g., Geschwind, 2011; Goldani et al., 2014; Rutter, 2000) attempted to zero in on a list of so-called autism genes (see Zeliadt, 2017). Studies (e.g., Prandini et al., 2012; Skaar et al., 2005; Wassink et al., 2001) have found thousands of autism-related gene markers, but not all gene markers could link exclusively to autism (Happé, Ronald & Plomin, 2006). In other words, there is no such a thing as autism gene. 'There are several conditions associated with autism that stem from mutations in

a single gene, including Fragile-X Syndrome and Rett Syndrome' (Zeliadt, 2017, para. 5). However, the number of cases of non-syndromic autism stemming from mutations in any single gene was found to be less than 1 percent (Zeliadt, 2017, 2021). The research findings to date retaliate the fact that 'there is no such thing as an *autism gene* — meaning that no gene is consistently mutated in every person with autism … also does not seem to be any gene that causes autism every time it is mutated' (Zeliadt, 2017, para. 5). In other words, the attempt to find genetic underpinnings and corresponding treatments for the five conditions specified in the DSM-IV has become rather impossible. Hence, it is best to 'characterize autism as an all-inclusive diagnosis, ranging from mild to severe' (Zeliadt, 2017, para. 5).

Tools for Autism Assessment
There is a wide range of informal and formal screening and assessment tools available for professionals to use in the assessment process to determine a diagnosis of ASD based on the diagnostic criteria provided in the DSM-5 (or alternatively, ICD-10 which is widely used in western European countries). The DSM-5 (APA, 2013) has indicated that "an autism diagnosis requires 'persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following': deficits in social-emotional reciprocity, in nonverbal communicative behaviors used for social interaction, and in developing, maintaining and understanding relationships" (Hess, 2022, para. 3). As a result, any autism assessment approach will have to put in mind the DSM-5 criteria for ASD identification.

The autism assessment approach may include the following widely used diagnostic tools: Autism Diagnostic Observation Schedule-2nd Edition (ADOS-2; Lord et al., 2012), Autism Detection in Early Childhood (ADEC; Young, 2007), Autism Diagnostic Interview-Revised (ADI-R; Lord Rutter, & Le Couteur, 1994), Child Autism Rating Scale-2nd Edition (CARS-2; Schopler et al., 2010), and Social Communication Questionnaire (SCQ; Rutter, Bailey, & Lord, 2003). Other useful ASD diagnostic assessment tools also include the following: Communication and Symbolic Behavior Scales (CSBS; Wetherby & Prizant, 2003), Gilliam Autism Rating Scale (GARS-3, Gilliam, 2014), Modified Checklist for Autism in Toddlers (M-CHAT; Robins et al., 2001), Parent's Evaluation of Development Status (PEDS; PEDStest.com., 2013), and Screening Tool for Autism in Toddlers and Young Children (STAT; Stone & Ousley, 2008).

In addition, professionals assessing or diagnosing children suspected of ASD may also administer cognitive tests, such as Comprehensive Receptive and Expressive Vocabulary Test–3rd Edition **(CREVT-3; Wallace & Hammill, 2013)** and Oral and Written Language Scales-2nd Edition (OWLS-2; Carrow-Woolfolk, 2011), and other assessments, such as Ages and Stages Questionnaires-3rd Edition (ASQ-3; Squires & Bricker, 2009) and Early Screening Inventory-Revised (ESI-R; **Meisels et al., 2008),** in order to gather more information about a child's development.

Besides, one interesting assessment approach is the use of projective drawing techniques (e.g., human figure drawing and house-tree-person drawing) to screen or identify those with ASD. For decades, children's human figure drawings (HFDs) have been the focus of attention. Lim and Slaughter (2008) argued that HFDs 'reflect a number of psychological variables including the drawers' intellectual maturity, personality, thought and emotion (Goodenough, 1926; Koppitz, 1968; Machover, 1949)' (p. 988). For this main reason, the authors of this paper selected five published papers on human figure drawings done by individuals with ASD for review. Through the review, the authors hoped to find common autistic traits in these projective drawings that could be used as early autism indicators to screen children suspected of having the condition and be referred to professionals for further assessment and follow-up treatment.

Human Figure Drawings (HFDs) to identify Autistic Traits
For a long time since the early 1920s when Goodenough (1926) first introduced drawing as a measure of intelligence, and almost 40 years later, it was popularized by Harris (1963), projective drawing techniques based on human figure drawings (HFD) have captured the attention of clinical and diagnostic professionals. Moreover, over the past six to seven decades, many studies (e.g., Flanagan & Motta, 2007; Gigi, 2016; Matto, Naglieri, & Clausen, 2005; **Slansky & Short-DeGraff, 1989**) have been published debating about the efficacy, reliability and validity of projective drawing techniques as clinical assessment tools (also see Motta et al., 1993, for detail). It is not within the scope of this paper to discuss about this issue and readers interested to find out more should consult the papers cited here.

The reason why the authors of this paper have chosen to focus on identifying autistic traits in HFDs instead of other projective drawings, such as a house or a tree drawing, is that they firmly believe children's HFDs reflect the developmental stages that they are likely to be associated with,

both cognitive and socialization processes, as postulated by Cox (1993), Freeman (1987), Lim and Slaughter (2008), and Motta et al., (1993).
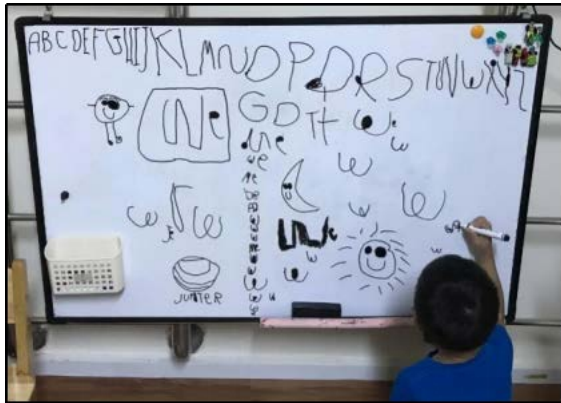
Photograph 1. Scribbling done on the Whiteboard by a Child with ASD (Courtesy of Crossland)

The authors have selected and reviewed the following five published papers on the use of human figure drawings (HFDs) in identifying autistic traits:

1. Lee, A. & Hobson, R.P. (2006). Drawing self and others: How do children with autism differ from those with learning difficulties? *British Journal of Developmental Psychology*, *24*, 547-565.
2. Lim, H. K., & Slaughter, V. (2008). Brief report: Human figure drawings by children with Asperger's syndrome. *Journal of Autism and Developmental Disorders*, *38*(5), 988-994.
3. Bar, I., Gabriely, M. A., Ashkenazi, O., & Shaviv, G. (2011). Autism spectrum disorder as reflected in drawings. *Academic Journal of Creative Art Therapies*, *1*(1), 52-56.
4. Papangelo, P., Pinzino, M., Pelagatti, S., Fabbri-Destro, M., & Narzisi, A. (2020). Human figure drawings in children with autism spectrum disorders: a possible window on the inner or the outer world. *Brain Sciences*, *10*(6). Article ID: 398.
5. Ivanova, V. (2021). Specifics in children's drawings with autism. *Journal of Intellectual Disability-Diagnosis and Treatment*, *9*(4), 368-373.

In the first review of the HFD study done by Lee and Hobson (2006), the two researchers made a comparison of drawings done by 14 subjects with ASD, aged 8 to 15 years, with those done by non-autistic subjects with learning disabilities (LD). They found that HFDs done by children with ASD showed a lack of variety due to their unusual way of thinking about and how they related to other people. When the subjects with ASD were asked to draw a female person, a male person and finally to also draw themselves, there emerged crucial differences between the ASD and LD groups in their HFDs. The LD subjects drew three distinct human figures, but the ASD subjects produced three human figures that varied little from one to the other. The HFDs done by the autistic subjects were just as detailed but they lacked variation. Lee and Hobson (2006) explained that '[T]here is evidence that (autistic) children's sense of individual kinds and characters of people, and their concepts of themselves, are less infused with personal qualities than are those of people without autism – and undifferentiated human figures would be one result' (cited in Jarrett, 2006, para. 3).

In the second review of another HFD study done by Lim and Slaughter (2008), 29 children with Asperger Syndrome (AS) or what Attwood (2014) has termed as ASD Level-1 (ASD-1), and 28 typically developed (TD) children were asked to draw a person, a house and a tree. As reported, there were no significant differences between the two groups on the tree or house drawing scores. However, when it came to the person drawing (or HFD) scores, children with AS (or ASD-1) scored significantly lower than TD children on the person drawing or HFD, using the Koppitz's (1968) scoring system, which involves both developmental and emotional indicators. However, in Lim and Slaughter's (2008) study, 'only the developmental indicators were used as they reflect the accuracy, detail and complexity of the human figures portrayed' (p. 990). Koppitz's (1968) scoring system for HFDs revealed a significant difference between the AS and TD groups, $t(55)=3.13$, $p<0.005$, with the magnitude of the differences in the means, $h^2 = 0.15$. In other words, the AS group produced fewer indicators of developmental maturity in their HFDs, compared to the TD group.

In addition, Buck's (1948) scoring system was also consulted by Lim and Slaughter (2008), and both good and flawed features of HFDs were tabulated. The HFDs done by the AS group showed 'significantly more flaws, $t(55)=2.65$ with $p<0.005$, and fewer good details, $t(55)=2.41$, $p<0.05$, than those done by TD group' (Lim & Slaughter, 2008, p. 991). When the authors of the study correlated Buck's standardized global scores with those from Koppitz's, they found both sets of scores to be highly consistent, $r(56)=0.88$, $p<0.001$, suggesting that the two scoring systems 'generated valid independent measures of the developmental sophistication of children HFDs' (Lim & Slaughter, 2008, p. 991).

Lim and Slaughter (2008) have also found a positive correlation between HFD (Buck's and Koppitz's scoring systems) scores and communication sub-scores on the Vineland Adaptive Behavior Scales (VABS) for the AS

group. Firstly, the correlation reliability between VABS Communication Subscale scores and Buck's global HFD scores just missed its statistical significance, with 'partial $r(25)=0.37$, $p=0.061$ (two-tailed), but its magnitude of the correlation was nevertheless noteworthy' (Lim & Slaughter, 2008, p. 991). The partial correlation reliability between VABS Communication Subscale scores and Koppitz's HFD indicators was significant, with 'partial $r(25)=0.41$, $p<0.05$ (two-tailed)' (Lim & Slaughter, 2008, p. 991).

The findings of Lim and Slaughter's (2008) study suggested that 'the selective deficit in generating human figure representations may derive from a relative lack of interest in the social world, and/or limited practice in drawing people' (p. 988) as exhibited by the AS children, who produce less sophisticated HFDs than TD children. AS children are not deficient in their general drawing ability but 'rather selectively less likely to produce a developmentally advanced high-scoring HFD' (Lim & Slaughter, 2008, p. 992). According to Lim and Slaughter (2008), there are four factors to account for the AS children's HFD deficits: Firstly, children with ASD spend less time looking at people (Swettenham et al., 1998) and hence, possess less detailed representations of human beings in HFDs (Lewis & Boucher, 1991). Secondly, unlike TD children, AS children are less motivated or put little effort to produce accurate or detailed HFDs. In fact, AS children show more interest in drawing inanimate objects and/or other objects of their special interests. Thirdly, AS children are less likely to practice HFD than TD peers, and this may result in developmentally less mature HFD produced. Lim and Slaughter (2008) observed that AS children began their HFDs 'at a location other than the head … the norm for typical children (Koppitz, 1963' (p. 992). Lastly, Lim and Slaughter (2008) felt that the request for an AS child to produce a HFD may create a selective increase in his/her cognitive load, 'exacerbating any fine motor problems and thereby causing *the child* to produce developmentally less advanced, relatively low scoring HFDs' (p. 993).

In the next review of a third HFD study carried out by Bar et al. (2011), the research team used the Machover Draw-A-Person (DAP) technique to identify typical indicators that characterize the human figures in the autistic population compared with the normal population. In their study, two groups of eight participating subjects aged between 22 and 38 years old were randomly selected: (i) the experimental group consisted of eight individuals diagnosed with ASD, and (ii) the control group consisted of eight typically developed individuals. The subjects were asked to draw themselves on a

piece of paper and three assessors reviewed the projective drawings.

Interestingly, the findings of Bar et al.'s (2011) study highlighted two significant differences between the two groups (Bar et al., 2011). Firstly, based on Malchiodi's (1997) stages of artistic development, the autistic subjects who scored between second and fifth stages were at a significantly lower artistic developmental stage than the typically developed subjects, who scored between fourth and sixth stages. 'There were significant differences between the two groups, i.e., $t(14) = -4.99$, where $p < 0.0001$, while the average stage of the experimental group was found to be 3.25 ± 0.89 (Mean $\pm$ SD) and that of the control group was 5.25 ± 0.70' (Bar et al., 2011, p. 55). The finding showed that the autistic drawers' artistic development was scored in the lower stage when compared to the control group. Bar et al. (2011) explained that '[S]ince children with ASD have problems developing imaginary schema and they also show little interest in drawing (Emery, 2004), this may explain their less sophisticated drawings' (p. 55).

Secondly, the autistic subjects drew significantly larger human figures that occupied a bigger area on the paper than those in the control group. 'Significant differences were found between the two groups in the square area of the human figure drawn, i.e., $t(14) = 6.72$, where $p < 0.0001$' (Bar et al., 2011, p. 54). The average size of human figure drawing was $306.88 \pm$ square centimeter 66.26 (Mean $\pm$ SD) in the experimental group, and $124.90 \pm$ square centimeter 38.42 (Mean $\pm$ SD) in the control group. This finding, according to Bar et al (2011), could be best explained by the experimental group's 'lack of interest in the social world (Lim et al., 2008), and also the autistic drawers were more absorbed into the world of their own (Koenig & Levine, 2011)' (p. 55).

Bar et al. (2011) argued that the results of their study suggested several difficulties that would characterize the autistic population: (i) mental retardation, and (ii) difficulties in forming connections with the external environment.

In the fourth review of a recent HFD study done by Papangelo et al. (2020) to evaluate the performance of children with ASD on HFDs relative to their typically developed (TD) peers, all the subjects were asked to draw three human figures (man, woman, self-portrait), and in turn, were evaluated with a neuropsychological battery. Their HFDs were scored according to the Maturity Scale, and correlative approaches testing maturity against neuropsychological scores were applied. The findings from Papangelo et al.'s (2020) study

showed that children with ASD presented marked deficits in maturity. There was no significant correlation emerged for both experimental and control groups between maturity and the Theory of Mind (ToM) test. Instead, results from the study indicated positive and significant correlations between maturity and the affect recognition test (AR) with group-specific patterns. In the TD subjects, this result regarded drawings of others, but not self-portraits, while an opposite pattern emerged for the ASD subjects, whose sole maturity in self-portraits significantly correlated with the AR scores. The findings suggested that 'the use of HFD tests with individuals with autism may not be used in clinical practices' (Papangelo et al., 2020, p. 1). However, in basic research, HFDs could be used to highlight dependencies between drawing performance and neuropsychological features, thus possibly providing hints on the functioning of autism.

Finally, in the fifth review of another recent HFD study done by Ivanova (2021), 120 children with ASD (whose severity of autism was measured using CARS-2) between ages 3 and 9 years old were involved in HFDs. According to Ivanova (2021), '[T]he peculiarities of sensory perception and perception of one's own body in children with ASD constitute the basis for understanding their cognitive and social development difficulties' (p.368). This, in turn, also concerns the maturation of drawing expressiveness, which according to several studies (e.g., Cannoni, 2005; Crocetti, 2008; Luquet, 2001) is proportional to the maturation of cognitive and emotional functioning. Children with ASD display lower somatosensory perception than TD children. As a result, inappropriate HFD is an indicator of a strong inhibition of socio-emotional components observed in children with ASD even if they have an adequate intellectual level but show delays in their drawing development (Frith, 1989/1991; Olivero, 2012).

In Ivanova's (2021) study, she identified six categories of drawings produced by children with ASD (p. 370): '(1) Embryonal-circles (see Figure 1), water, amoeba (see Figure 2); (2) Color spots that cover the human figure or depict a human figure without external borders; (3) Figures and letters (see Figure 3); (4) Human figures fenced as a bubble, a human figure composed with parts of objects body parts (the elements are not connected); (5) Geometric shapes objects (e.g., buildings, streets with marking, residential blocks, strange shells); and (6) Road signs, logos.'
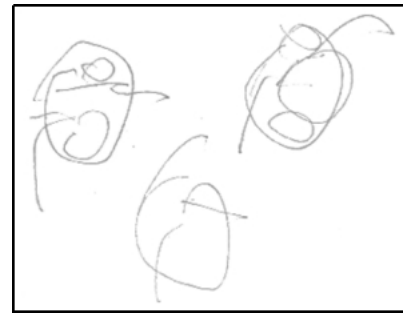

Figure 1. Embryonal-Circles
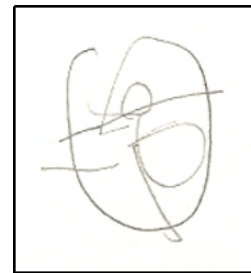(Courtesy of Crossland)

Figure 2. An Amoeba
(Courtesy of Crossland)

Figure 3. Figures and Numbers
Courtesy of Crossland

In her analysis of the frequency of the drawings, Ivanova (2021) found that most drawings observed fell under the first category, i.e., circles (see Figure 4), embryonic, water) followed by second and third categories (i.e., color spots, numbers and letters).

Figure 4. Repetitive Circle Drawings
(Courtesy of Crossland)

The HFDs produced are without external borders such that the disjointed body parts, partially drawn, seem to be dangling or scattered everywhere on the paper (see Figure 5).
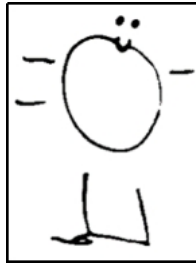
Figure 5. Disjointed Body Parts
Courtesy of Crossland

Category 5 drawings are found in children with moderate ASD. However, those with severe and very severe ASD, 'embryonic drawings and circles, water, color spots and isolated by some other categories are predominant' (Ivanova, 2021, p. 370). Interestingly, Ivanova (2021) also noted that 'children in the worst end of the disorder prefer to draw colorful spots, one particular type of drawing dominates, while children in the lighter forms show a sum of all types of categories' (p. 370). Only in 10 HFDs were human figures painted and often with non-living elements.

From Ivanova's (2021) study, the findings revealed the following: (1) Children with ASD are significantly less likely to draw a complete human figure, but often with disjointed body parts and one of the parts is an inanimate object; (2) Their HFDs depend on what they mean and not what they see right before them; (3) The HFDs are done more in a stereotypical way than in a communicative and relational way, i.e., 'the lack of communication affects not only the verbal level but all channels of expression and imaginative processes, as is also evident in the poverty or lack of symbolic play' (p. 372); and (4) A significant delay in the drawing process of ASD children is obvious, unrelated to the IQ, but rather to social affection (Di Renzo et al., 2017). In her conclusion, Ivanova (2021) reiterated her findings showed that 'the relationship of drawing with the level of autistic symptomatology is unrelated to the IQ but rather to sociability and the level of contact' (p. 372).

Conclusion

In summary, the review of the five selected published papers on HFDs done by individuals with ASD suggests the following key points when using HFDs to identify autistic traits:
1. HFDs done by children with ASD show a lack of variety due to their unusual way of thinking about and how they related to other people.
2. HFDs done by children with ASD are less sophisticated with less detailed representations of human beings.
3. HFDs done by children with ASD show the drawers are at a significantly lower artistic developmental stage than their TD peers.

4. Children with ASD draw significantly larger human figures that occupied a bigger area on the paper than those drawn by their TD peers.
5. Children with ASD show sole maturity in self-portraits that significantly correlated with their Affect Recognition (AR) scores, but present marked maturity deficits in their HFDs when drawing other human figures.
6. Children with ASD show delays in their drawing development unrelated to their IQ, but rather to their social affection, i.e., sociability and the level of contact.
7. Children with ASD are less likely to draw a complete human figure, but often with disjointed body parts and one of the parts is an inanimate object.
8. HFDs done by children with ASD depend on what they mean and not what they see right before them.
9. HFDs are done more in a stereotypical way than in a communicative and relational way.

In a recent study led by Shi et al. (2021), the Chinese research team from Shanghai Jiao Tong University constructed 'an ASD painting database which contains 478 paintings drawn by ASD individuals and 490 drawn by the TD group' (p. 1). Through the process of qualitative and quantitative analyses, they found several significant hallmarks in the ASD paintings: composition location, edge completeness, face, repetitive structure, and structuring logic. However, there is still a lack of adequate and reliable data in the current literature related to the analysis of HFDs as well as other projective drawings done by children with ASD. Further research should be encouraged to investigate the efficacy of the developmental and socio-emotional indicators used in scoring the projective drawings to identify autistic drawers. In this way, the authors of this paper hope a better analytical projective drawing technique can be developed to help therapists to identify the autistic traits in young children for immediate referral and follow-up early intervention.

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Psychoeducational Diagnostic Assessment, Evaluation & Profiling on Children for Educational Therapists: A Proposed Procedure

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Abstract
Children who struggle in learning or exhibiting behavioral problems are common in schools. Such struggles may occur early in a child's development, and later manifested as difficulty coping in school such as difficulty in understanding directions, learning to read/write, completing tasks in the allotted time period, or planning/organizing tasks/materials. Despite the support provided from school, these struggles still persist which leave children, teachers, and parents feeling helpless and frustrated. A psychoeducational diagnostic assessment, evaluation and profiling (PDAEP) by a trained educational therapist can help to open door to identifying the child's strengths and learning challenges. The authors of this paper proposed a 10-steps procedure in PDAEP which begins with a comprehensive understanding of the client (background information, developmental history, medical history, etc.), administration of tests (based on Hierarchy of Abilities & Skills model), evaluation (based on CCAS model), analysis (based on CHC model), developing and implementing IEP, progress monitoring, and finally progress evaluation and planning for the next IEP.
Key Words: Evaluation and Profiling, Educational Therapist, Psychoeducational Assessment, Special Needs

Introduction
When children struggle to learn things at a pace that would be expected for their age or grade level, a psychoeducational assessment may be required to determine why they are struggling so that necessary supports or intervention is provided to help them reach their full potential. In conducting such assessment, there is a diversified range of procedures and testing that may be conducted. The types of assessments usually are determined based on the areas of concerns of the individual, either learning or behavioral challenges. Referrals for psychoeducational assessment may either be originated from parents who suspect their child is having problems in learning/behavior or feedback from school teachers' that require specialized attention. The authors of this paper propose and outline a systematic procedure on psychoeducational diagnostic assessment, evaluation and profiling for special needs professionals.

What is Psychoeducational Diagnostic Assessment, Evaluation & Profiling (PDAEP)
Not all children are able to learn and cope with school demands. Some children struggle in school in the areas of following directions, reading, writing, mathematical difficulties (numerical computations or problem solving). School teachers will help to provide feedback to parents that their child is having

learning difficulties. In some cases, school learning support teachers often raised red flags in some learning disability such as autism, dyslexia, or attention deficit hyperactivity/impulsivity disorder. In such cases, such children might need a psychoeducational assessment to determine why they are struggling to cope with learning and to provide supports or interventions necessary so as to achieve their full potential.

According to Salvia and Ysseldyke (1978), Psychoeducational Assessment (PA) can be defined as*: "a process of collecting information on a student's skills, performance, learning history, and instructional context, in order to make decisions about what supports and interventions might be needed for that student" (p. 336).

Moreover, PA can also be conceptualized as the process of effective problem solving for the following purposes:
(1) to determine the referral question, "What information do we need to know?''; (2) to decide on the most efficient and effective methods of assessment, "How can we get the necessary information?''; and (3) to use the assessment results so as to develop an effective academic and/or behavioral intervention plan, "How do we use the information?'' Special Needs Educational Therapists

(SNETs), in particular, conduct PA for the following reasons: (1) screening for any learning/behavioral challenges, (2) school placement, (3) intervention planning, (4) intervention evaluation, and (5) measurement of student progress.

A comprehensive PA will provide information about student-specific skills and areas of functioning (e.g., medical, developmental, learning/academic and social functioning), as well as environmental factors that impact the student's learning. Generally, PA involves a standardized assessment of a child's intellectual and academic abilities and is administered by SNETs. The assessment also combined with clinical interviews from caregivers of the child, observations, and historical records to help understand how the child learns, and identify if and how they're struggling. PA measures core skills such as reading, writing and math which involves a number of techniques (e.g., pencil and paper activities, verbal responses, and evaluation of motor skills such as drawing or playing with blocks. Not all assessments are the same for every child and it varies based on a child's age. Assessment results can then help professionals understand the child's potential (i.e., if they are gifted or have a learning disability) and provide strategies to support them. During the assessments, other concerns such as attention-deficit/hyperactivity disorder or anxiety are also evaluated.

Results from any of the assessment tests are usually not further evaluated when they were shared with a child's parents. For example, when a scaled score of 6 for the "Bug Search" subtest under the Processing Speed Index (PSI) used for Wechsler Preschool and Primary Scale of Intelligence-4th edition was reported in the assessment report, what actually does this mean? And what do the value of the PSI mean? In other words, most of the reports conducted as only based on PA, there is no further evaluation and profiling done after a psychological diagnostic report. This is why evaluation and profiling is very much needed in order to pinpoint the main issues of concern of the client with regards to learning and/or behavioral difficulties. In other words, evaluation refers to the process of deriving at a diagnosis while profiling is based on the psychological assessment of a client where evidence is identified and interpreted to indicate a certain diagnosis. Finally, the use of at least three different assessment results is then triangulated to pinpoint at the precise and exact problem(s) of the client, known as epignosis. Hence, PA is now manifested into psychoeducational diagnostic assessment, evaluation and profiling (PDAEP).

A Proposed Procedure on PDAEP
Every professional in their practice has their own protocol/procedures when conducting PDAEP. For example, the Association of Educational Therapist (2013) in USA applied a model of educational therapy that comprises of the following nine steps:
1. Identification of current challenges,
2. Synthesis of information collected from other professionals, parents, and client,
3. Formal and informal diagnostic assessment,
4. Interpretation of assessment results,
5. Prioritization of primary and secondary issues of concern,
6. Collaborative consultation with other professionals, parents, and client,
7. Planning and intervention program,
8. Implementation of the intervention program, and
9. Evaluation of the intervention program.

There are not many models used in Singapore that provides a protocol/procedure in PDAEP. For example, a model proposed by Poon, Conway and Khaw (2008) used APIE (Assessment, Planning, Implementation, and Evaluation) as a linked system of support for students with special needs in Singapore mainstream schools. With the scarcity of models used in Singapore, the authors of this paper would like to propose the following 10-steps procedures when conducting PDAEP. They are briefly described below:

Step #1: Consultation with consultee(s) on the client's condition
This is the first step of the procedure where the educational therapist gathers pertinent information in consultation with the consultee(s) such as parents, teachers, or other professionals (e.g., speech therapist, occupational therapist, behavioral therapists, reading therapist, etc.) on any learning challenges or behavioral issues that the client might have. Other information such as diagnosis, educational background, birth history, medical history, food or drug allergy, and reports from external therapists and/or school teachers is important as it aids in observation, assessment, and treatment plan later.

Step #2: Decide on tests to administer based on the Hierarchy of Abilities & Skills model
Many tests are meant to measure different types of skills and abilities of children. Abilities are the potentials of children in their learning journey while skills are learned behaviors through practicing. In other words, skills can be developed and improved over time with the combination of one's abilities and knowledge. For example, if a child can draw and color well, this is his/her ability and the prerequisite skills to draw and color well come from (1) good fine motor (hands, wrists, and fingers), (2) eye-hand coordination, (3) sustained attention/focus, (4) as well as imagination.

According to Chia (2008), the hierarchical model of skills and abilities consists of five different levels of building blocks (see Figure 1) which will be briefly
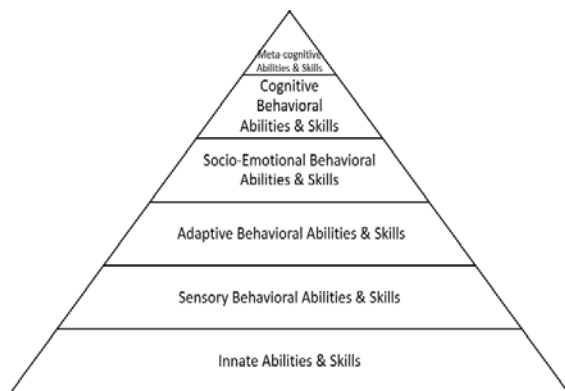

Figure 1. Hierarchy of building blocks of abilities and skills (Chia, 2008)

Block #1: Innate Abilities & Skills (COGNITION)
Known as the foundational block, this block refers to the core skills of an individual's innate abilities which deals with the use of (1) language to communicate; (2) abstract thoughts and reasoning skills; (3) memory retention; and (4) problem solving skills. Common assessment tools to measure the intellectual functioning of children are Kaufman Brief Intelligence Test-2nd Edition (KBIT-2), Developmental Assessment of Young Children-2nd Edition (DAYC-2), and Slosson Intelligence Test-4th Edition (SIT-4).

Block #2: Sensory Behavioral Abilities & Skills (SENSATION)
This block focuses on the sensory-perceptual-motor coordination and related behavioral skills and abilities which involves balance/coordination of the body (vestibular) and position of body (proprioception) of children. Children who exhibit sensory processing issues may have troubles processing the information they receive from any of their senses (sight, hearing, touch, smell, or taste). For example, some may react very strongly to loud noises or bright light. Even some can be hyposensitive or hypersensitive. Children who are hyposensitive require more sensory stimulation and are often moving around or like crashing into things. Hypersensitive children tend to avoid strong sensory stimulation and may get easily overwhelmed. All sensory processing problems will affect children's learning as it is hard for them to remain seated and stay focus while attending to a task. Hence, educational therapists need to assess children's sensory needs if there is/are any. Otherwise, an occupational therapist can also be enlisted. Three common assessment tools used for young children are: (1) Infant/Toddler Sensory Profile (ITSP); (2) Sensory Processing Measure-Preschool (SPM-P); and (3) Sensory Profile-2nd Edition (SP-2).

described below (for more details, see Chia, 2008, 2013).

Block #3: Adaptive Behavioral Abilities & Skills (CONATION)
This block concerns the adaptive behavioral skills and abilities of children such as activities of daily living, social interaction, communication, self-help skills (toileting, dressing/undressing, bathing), personal hygiene (wiping own mouth after eating). One of the common assessment tools used is the Adaptive Behavior Skills Checklist (ABSC; Alamance Community College, n.d.).

Block #4: Socio-Emotional Behavioral Abilities & Skills (AFFECT)
The fourth block consists of socio-emotional behavioral skills and abilities which cover adaptive internalizing and externalizing behavioral skills. This level of skills and abilities can also be determined by administering assessment tools such as ADHD Rating Scale-IV (ADHD-RS-IV; DuPaul, 1998) and Gilliam Autism Rating Scale-3 (GARS-3; Gilliam, 2013).

Block #5: Cognitive Behavioral Abilities & Skills (COGNITION & NEUROCOGNITION)
The last block of abilities and skills refers to any form of cognition associated with the functioning of one or more specific cortical areas (as well as the neuropathways) of the brain. The neurocognitive functions are actually cognitive functions that are associated with specific neural pathways or cortical network as well as specific neuronal loci within the brain. They can be impacted by different lesions or disease processes resulting in neurocognitive malfunctioning. Examples of assessment tools used here are as follows: (1) Neurological System Inventory (NSI); (2) Amen Brain Type Checklist (ABTC); (3) Human Figure Drawing Test for Cognitive Impairment (HFDT-CI; Ericsson et al., 1996).

Step #3: Test administration
After steps #1 and #2 are conducted, the relevant therapists will commence to administer the appropriate assessments based on the needs on the clients. For example, the educational therapist may administer an IQ test such as Slosson Full-Range Intelligence Test (S-FRIT), which is an excellent, quick and reliable tool to measure verbal, non-verbal, memory, quantitative, abilities when language skills are limited. Alternatively, the Slosson Intelligence Test-4th Edition (SIT-4) is another test for verbal screening of cognitive ability for children and adults. It is also ideal for people with visual impairment, reading disabilities, or other conditions.

Step #4: One evaluation report per test

One evaluation report per test has to be evaluated, analyzed, and written after the test(s) is/are administered. Thereafter, all reports are to be compiled and bounded into a single case report with distinct categorization of each administered test with clear tabs. This is for the ease of references and case discussion among different professionals.

Step #5: Analysis of evaluation reports to triangulate all test results to pinpoint the issue of concern

If there are more than one tests being administered on a client, triangulation has to be done for evaluation purpose. This is done by obtaining results from three different types of assessment tests so as to develop a comprehensive understanding of any learning disorder of a client. According to Patton (1999), triangulation in qualitative research is a strategy employed to test validity of obtained data through the convergence of information (e.g., interview) from different sources. The main purpose of triangulation in therapy is to derive at a diagnosis with precision, or to pin point at a particular issue of concern(s) that the client might have (epignosis). The term *"epignosis"* is a Greek word which means "precise and correct knowledge" used in the Bible.

Step #6: Classify the traits extracted from the analysis of evaluation reports to pinpoint the key issue(s) of concern or the main condition or any comorbidities using the Cognition-Conation-Affect-Sensation (CCAS) model

Although Poland's (1974) model of behavioral potentials resembles the CCAS model in some ways, the main difference is the omission of sensation in Poland's model. This means that the model would have been incomplete without sensation or sensory component, which links all the other three components together. The CCAS model (see Figure 2), whose focus is on the human potential, covers the four behavioral potentials and it consists of (1) cognition (Bloom, 1956); (2) conation (Riggs & Gholar, 2009); (3) affect (Krathwohl et al., 1964); and (4) sensation (Chia et al, 2010). Each of these four components is briefly discussed below.
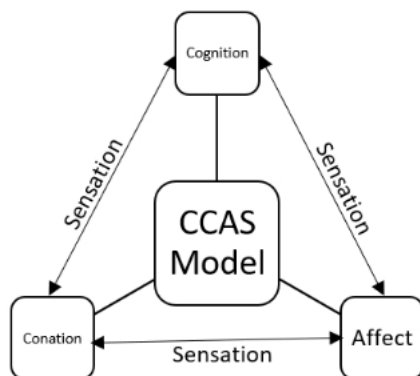

Figure 2. CCAS model (Chia et al., 2010)

Cognition

There are many different definitions of cognition. In 1967, Neisser defined cognition as 'processes by which the sensory input is transformed, reduced, elaborated, stored, retrieved, and used' (p. 13) in the classic book of cognitive psychology (Neisser, 1967). According to Poland (1974), the component of cognition "has to do with intellect, the 'use of the mind,' whether it is logical or illogical' (p. 13). Thirty years later, Huitt and Cain (2005) refer cognition as 'the process of coming to know and understand; of encoding, perceiving, storing, processing, and retrieving information' (p.1). The lists of the different definitions of cognition goes on and on depending on which framework we are basing on.

Thus, it is not the aim of this paper to delve into explaining the different types of definition of cognition, but rather to use the model of CCAS framework to analyze the evaluation reports to pinpoint the key issue(s) of concern or the main condition or any comorbidity using the framework.

Conation

The second component of the CCAS framework is conation which refers to the connection of knowledge and affect to behavior and is associated with the issue of 'why'' (Huitt & Cain, 2005, p.1). According to McDougall (1926), conation is an old term which refers to willingness, desire or a striving towards achieving goals used in classical psychology.

There are various different terms used to represent conation such as "intrinsic motivation, goal-orientation, volition, will, self-direction, and self-regulation" (Huitt & Cain, 2005, p.1). Reeves (2006) described conation as "the concerns whether an individual possesses the will, desire, drive, level of effort, mental energy, intention, striving, and self-determination to actually perform to his/her very best."

Affect

Affect refers to 'the emotional interpretation of perceptions, information, or knowledge' (Huitt & Cain, 2005, p.1). Generally, affect is related to an individual's socio-emotional attachment (positive or negative). According to Krathwohl et al. (1964), they described affect as 'the process whereby a person's affect toward an object passes from a general awareness level to a point where the affect is internalized and consistently guides or controls the person's behavior' (cited in Seels & Glasgow, 1990, p. 28) that is ordered according to the principle of internalization.

Sensation

The last component of the CCAS model is sensation. Sensation plays a critical role in establishing perception (how information is being perceived and interpreted through the human senses?) and how interpretation of incoming information affects one's learning and behavior.

Apart from the five human senses (sight, sound, taste, touch, smell), there are also two other systems, i.e., interoceptive and exteroceptive senses that might affect sensation. The human interoceptive sensory system comprises of vestibule and proprioception that can impact on the exteroceptive sensory system which consists of the human five sensory organs: eyes (visual/see), ears (auditory/hearing), skin (haptic/touch), nose (olfactory/smell) and tongue (gustatory/taste). The way sensation goes about processing, integrating, and modulating sensory inputs adversely affect the motoric output of humans. According to Chia et al. (2010), the sensation between affect and conation involves self-awareness and self-regulation respectively; (2) the sensation between cognition and conation involves self-learning and self-regulation respectively; and (3) the sensation between affect and cognition concerns self-awareness and self-learning respectively. In another paper by Chia and Chua (2014), they re-categorized sensation into four levels (i.e., exteroceptive, interoceptive, mindsight, and relational senses). Mindsight concerns the sensory ability to perceive the mind (i.e., thoughts, feelings, intentions, attitudes, concepts, images, beliefs, hopes, dreams) which enables one to gain deep insight and empathy. It enables aspects of mind of oneself or other selves to be brought into the focus of attention. While relational sense, or otherwise also known as sense ability (Helmering, 2001), allows us to attune with other people and become aware of feelings felt by others and, in turn, it enables us to feel a part of the larger whole or community.

Step #7: Correlate the abilities and skills that the client is having problems using the Cattell-Horn-Carroll (CHC) Framework so as to develop an Individualized Education Plan

Among all, the CHC framework is the most comprehensive and scientifically supported psychometric framework of the architecture of human cognitive abilities.

This proposed framework to be used in psychoeducational evaluation and analysis has accumulated over 60 years of robust empirical research and it is still being used in the development of many assessment tools to measure human intelligence and cognitive abilities (Alfonso, Flanagan, & Radwan, 2005; Horn & Blankson, 2005; McGrew, 2005; Schneider & McGrew, 2012, 2018). The CHC framework is the integration of research done by Raymond Cattell, John Horn, and John

Carroll. Recently, this framework has been used to classify intelligence into 16 broad cognitive abilities (e.g., fluid intelligence, crystallized intelligence, general knowledge, short-term memory, long-term storage and retrieval, visual processing, auditory processing, processing speed, reading/writing ability, etc.) with more than 80 narrow abilities proposed by Schneider and McGrew (2012, 2018). The CHC framework ultimately provides an integrated framework of both cognitive and neuropsychological perspectives (Flanagan et al., 2010).

The Individualized Education Plan, or sometimes known as the Individualized Education Program (IEP), is a legal document under the Individuals with Disabilities Education Act (IDEA, 2004; P.L. 108-446, 2004) in the US. IDEA is under the federal legislation that guarantees the rights of children with learning and other disabilities to a free and appropriate public education. It is also the requirement of the IDEA 2004 (P.L. 108-446, 2004) that an IEP to contain statements of specific, measurable, and functional learning goals of the client annually. Schools must also include a description of how the learning goals are to be measured and tracked so that progress reports will be provided to parents towards the end of the goals. In Singapore, the IEPs are usually developed twice yearly with two semesters (Term 1 from January to June and Term 2 from July to December) where therapists will meet the parents to discuss the progress as well as to share new IEP goals of the clients for the new term.

Step #8: Implement the IEP
After correlating the abilities and skills of the client using the CHC framework and formulating the IEP, the educational therapist can begin the treatment based on the learning goals stipulated in the IEP. Prior to the implementation of the IEP, the educational therapist will have a consultation with the client's caregivers to decide on the intensity (number of hours for each treatment) and frequency (number of treatment sessions) of the types of therapy (e.g., educational therapy, occupational, speech and language therapy, behavioral therapy, etc.) based on the needs of the client. Depending on the needs of the clients, the types of therapy required can be a mixture of each type (e.g., educational therapy with occupational therapy) on separate sessions.

Approaches to treatment plan also plays a crucial role to the learning outcome of the clients with learning/behavioral challenges. Common approaches such as multidisciplinary, interdisciplinary, and transdisciplinary are often used in the treatment plan. In the multidisciplinary approach, professionals each approach a situation or problem from their own perspective and then share findings. The

interdisciplinary teams are similarly interdependent, but efforts are collaborative and team members work together toward a resolution. Finally, the transdisciplinary teams, members come together from the beginning to foster joint communication, exchange ideas and work together to brainstorm with possible solutions to problems (Rosen, et al., 1998). The transdisciplinary approach operates within a family-centered practice model where family members are always part of the team and are respected and valued as equal members. Though all team members' participation is equal, the family is the final decision-maker for the client (Woodruff & McGonigel, 1988).

Step #9: Monitor the client's progress
Monitoring of the client's progress is crucial as it helps to evaluate and improve outcomes in providing treatment. Progress monitoring tools are usually simple and brief and it can be just a pencil and paper recording, or some therapists may use electronic means such as taking photographs/videos. Some may even resort to using anecdotal records or checklists to help them remember and track the progress of the clients. Routinely monitoring client progress during treatment has to be ongoing as it helps to reduce deterioration and enhance treatment and learning outcomes of the clients. In addition, continuous feedback system of clients' progress to caregivers do help to improve learning outcomes. Finally, progress monitoring can also help in clinical decision-making of the therapists (Bickman et al., 2011; Lambert et al., 2003; Reese et al., 2009).

Step #10: Evaluate the client's progress and plan for the next step to be taken
Sometime treatment alone with only the educational therapist is insufficient. If the client's needs are more diversified and requires other areas of professionals, a transdisciplinary approach is best suited for the benefits of the client. If the client is a student, school visit is also a good way to evaluate the client's learning to ascertain if he/she can generalize his/her skills into other settings (school/community) with different people (teachers and friends). Apart from school visits, another way is to conduct home visit. Home visits permit therapist to see the client in a more natural and comfortable setting (home), parent-child interaction/communication, and parenting styles. Visits to home allow parents to consult and share more about themselves and also their child's learning challenges. Therapists can then offer tips or strategies to the parents who are facing difficulties with their children. Finally, therapist and parents can also foster a closer bond so that they can work in partnership for the betterment of the child.

Conclusion
This short paper has provided an outline of a systematic procedure as proposed by the authors when conducting psychoeducational diagnostic assessment, evaluation and profiling (PDAEP) for educational therapists working with school-age children facing learning/behavioral challenges in class. It is hoped that this proposed procedure can serve as a comprehensive guideline for educational therapists to take their first step to embark on psychoeducational assessment they need to carry out in future.

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