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REVIEW ARTICLE

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

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Editorial note: Republication
This article was originally published in the discontinued Early Years Research (EYR) without a Digital Object Identifier (DOI). EYR was published by the same scholarly association as The Asian Educational Therapist (AET). It is now republished and digitally archived in AET with a new DOI for better preservation, discoverability and citation tracking. Copyediting and formatting updates were applied for improved readability and accessibility. The intellectual content remains unchanged. Readers are advised to cite the new version with the DOI.
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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 article 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 Conative, Cognitive, Affect, Sensation model), analysis (based on Carttell-Horne-Carroll model), developing and implementing Individualized Education Program, progress monitoring, and finally progress evaluation and planning for the next IEP.

Keywords: *Evaluation and Profiling, Educational Therapist, Psychoeducational Assessment, Special Needs*

1. 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.

2. 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 are 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).

3. 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 Assessment, Planning, Implementation, and Evaluation (APIE) 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, 2013), the hierarchical model of skills and abilities consists of five different levels of building blocks (see Figure 1) which will be briefly described below:

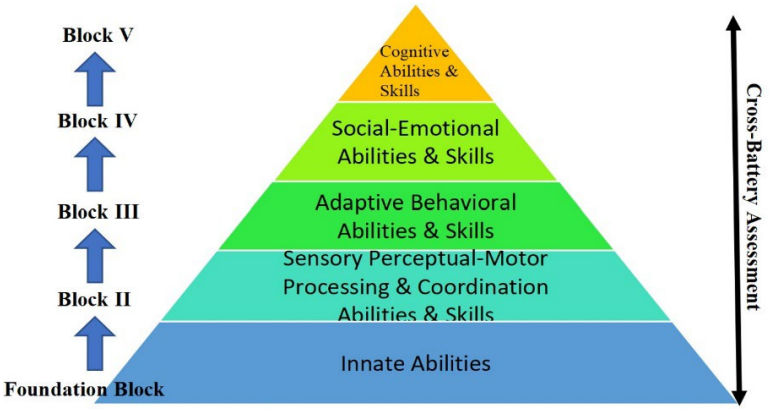

Figure 1. Hierarchy of building blocks of abilities and skills (Chia, 2008)

Block #I: 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).

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.

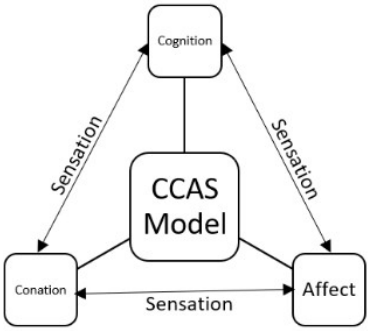

Figure 2. CCAS model (Chia et al., 2010)

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' 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'. 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'. 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). 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). 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' (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 Program (IEP), is a legal document under the Individuals with Disabilities Education Act (IDEA, 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 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.

4. 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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Authors have declared that no competing interests exist.

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