

Fluid Reasoning

Is your child intimidated by new procedures or approaches?



Is your child:

- Having a hard time learning new tricks?
- Struggling when introduced to new concepts?
- Resistant to trying a new way, even when the old way doesn't work?
- Getting lost when introduced to a new game or a new puzzle?
- Shying away from block puzzles, jenga, or a Rubik's Cube?
- Easily frustrated when learning something new?

LET'S TALK ABOUT IT

Having a hard time learning new tricks? Some say that 'you can't teach an old dog new tricks'. Perhaps this statement may be true with some animals. However, with regard to human behavior, science shows that our brains have *plasticity*, meaning we can learn something new at any age. Learning new concepts is harder for some people than for others. In psychology, 'fluid reasoning' is what we call the learning of new 'tricks' or the solving of new problems. If your child struggles with learning new ways to do things, his or her fluid reasoning may be impaired. When a teacher presents a new math

procedure, or it is the first day of algebra, the child may feel lost and discouraged. The good news is that we have ways to test for this cognitive skill, and we have effective strategies that families and teachers can use to improve their child's fluid reasoning abilities.

Fluid reasoning is often referred to as 'novel problem solving'. Humans have various levels of skill when provided with opportunities to solve new problems. Another old saying is 'necessity is the mother of invention', meaning that when people are pressed to solve a problem, particularly for their own survival, they tend to get exceptionally creative to solve it. For example, if you were in a plane crash and wound up on a deserted island, you would rely on your novel problem solving skills. People who travel a lot might have to use novel problem solving to navigate the subway, to order food at a restaurant, and to walk around in a new city.

CLINICAL DESCRIPTION

Clinically, this ability to solve new problems is called 'fluid reasoning'. On an IQ test, individuals are presented with patterns and puzzles they have never seen before. They are given only brief directions and no specific methods or strategies.

Fluid reasoning is a measure of the brain's ability to take in new information without the benefit of practice or experience.

This type of learning is 'fluid' in that it does not build up over time. Fluid reasoning does not require background knowledge. Rather, this type of thinking requires a person to problem solve in a new way with new materials and with 'new rules'. A clear definition of the concept of fluid reasoning is provided by intelligence testing expert, Jerome Sattler.

Fluid reasoning, or fluid intelligence,

"refers to essentially non-verbal, relatively culture-free mental efficiency. It involves adaptive and new learning capabilities and is related to mental operations and processes" [6].

Three premier researchers and thought leaders in the study of intelligence developed the Cattell-Horn-Carroll theory (CHC theory). Intelligence was divided into the following two primary domains: fluid reasoning and crystallized intelligence [1].

Crystallized intelligence is about previously learned information such as vocabulary, math facts, and categorical knowledge. This crystallized intelligence is much more influenced by exposure, cultural experience, and practice.

Fluid reasoning is a measure of how a person responds to new situations or adapts to new approaches [1]. Although verbal skills are not necessarily required, the ability to talk through a problem using a logical strategy is generally helpful with these problems.

WHAT TO DO IF YOUR CHILD STRUGGLES WITH NEW LEARNING

When children struggle with fluid reasoning, they tend to benefit from help with making connections to background knowledge. For example, if the child is learning about a new country, it can be helpful to talk to him beforehand about similarities to his own country or culture.

Connect to background knowledge: When learning about geometry, parents or teachers might show the child common household objects with the same shape (for example, a ball for a sphere, a cereal box for a rectangular prism). In the classroom, children with challenges in fluid reasoning may benefit from checklists for step-by-step procedures.

Model problem solving strategies by doing a ‘think aloud’ while showing a child how to solve a problem [2]. For example, in math, a parent can say, “First, I will read the directions carefully. Next, I will make a picture. Then, I will write a number model. Now, I will solve the problem.”

Get help for performance anxiety: If your child’s fluid reasoning is impaired due to refusal to try new approaches, anxiety may be the problem. In that case, your child may worry about how he will perform on new tasks and thus may be resistant to learning new strategies or approaches. This concern would be related to performance anxiety or self-efficacy, which is your child’s belief in his ability to perform well on a particular task. This issue may require an evaluation or therapy to determine if anxiety is an issue and to help your child learn coping skills.

Get help for general anxiety: Your child may have generalized anxiety, whereby all uncertainty makes her nervous. In that case, learning something new may be intimidating because she does not know if something bad may happen in this unpredictable situation. For these issues, there are resources that can help your child with anxiety [3-5]. If the problem is more anxiety-related, your child should get better at fluid reasoning after he or she learns coping techniques. If your child receives treatment for anxiety but the challenges with new learning persist, it is possible that there is a cognitive or executive functioning issue. See below for suggestions if that is the case for your child.

SIMILAR SYMPTOMS

If your child is struggling with a similar problem, not directly addressed in this section, see the list below for links to information about other related symptom areas.

- [Verbal comprehension](#): if child struggles to understand the new task due to poor comprehension of directions, verbal comprehension may be impaired
- [Spatial](#): if the child struggles on new tasks like reading maps and solving puzzles, spatial reasoning may also be impaired
- [Intelligence](#): if the child has difficulty with cognitive tasks and has a low IQ overall, fluid reasoning is likely to be impaired

- [Rigid Behavior](#): if the child struggles on new tasks because she is ‘set in her ways,’ she may have a problem with rigidity
- [Flexibility](#): if the child struggles to learn new tasks because he or she has trouble fluidly shifting from one approach to another, there may be a problem with an executive function called ‘shift’ or ‘cognitive flexibility’
- [Anxiety](#): if the child struggles on new tasks because he or she cannot tolerate the uncertainty inherent in learning something new, the child may have general anxiety, performance anxiety, or low self-efficacy
- [Non-verbal](#): if the child struggles to learn new things in terms of visual puzzles or logical reasoning, there may be an issue with non-verbal reasoning
- [Self-Esteem](#): if the child struggles to try out new procedures due to an overall lack of confidence and belief in himself or herself, self-esteem may be the issue

POTENTIAL DISABILITIES

Children who have significant problems in this area **may** have any of the following potential disabilities. *Note, this information does **not** serve as a diagnosis in any way. See the ‘Where to Go for Help’ section for professionals who can diagnose or provide a referral.

- [Specific Learning Disability \(Educationally Identified Disabilities\)](#): problems with fluid reasoning can have a significant impact on learning
- [Dyscalculia or Specific Learning Disability in Math \(Educationally Identified Disabilities\)](#): problems with mathematics may relate to problems with fluid reasoning
- [Depression](#): problems with depressed mood may impact processing speed and motivation for new learning
- [Intellectual Disability \(Educationally Identified Disabilities\)](#): problems with overall intellectual functioning may impact fluid reasoning
- [Social anxiety](#): problems with extreme worries or nervousness about ‘being on-stage’
- [Generalized anxiety](#): problems with pervasive worries and fears may cause rigidity which will interfere with new learning

WHERE TO GO FOR HELP

If your child is struggling with this symptom to the point that it is getting in the way of his learning, relationships, or happiness, the following professionals could help; they may offer diagnosis, treatment, or both.

- [CLEAR Child Psychology](#): to obtain a *customized profile* of concerns for your child or to *consult ‘live’* with a psychologist
- [Psychologist or neuropsychologist](#): to consider symptoms in a mental health context

- [School psychologist](#): to potentially test IQ or to consider academic issues (generally only in the context of an IEP evaluation – parents cannot necessarily request an IQ test from the school psychologist)
- [Physical Therapist \(PT\) and/or Occupational Therapist \(OT\)](#): to look at fine and gross motor skills
- [Speech Language Pathologist \(SLP\)](#): to assess issues with receptive or expressive language

These professionals may recommend the following tests for this symptom:

- [KABC-II](#): a test of cognitive ability (IQ)
- [WISC-V](#): a test of cognitive ability (IQ)
- [WIAT-III](#): a test of academic ability (Achievement)

LEARN MORE

For kids:

[1] Deak, JoAnn & Ackerley, Sarah (2010). *Your fantastic elastic brain stretch it, shape it*.

Amazon: <https://www.amazon.com/Fantastic-Elastic-Brain-Stretch-Shape/dp/0982993803/>

[2] McCumbee, S. (2014) *The garden in my mind: Growing through positive choices*. Amazon: <https://www.amazon.com/Garden-My-Mind-Growing-Positive/dp/1934490547/>

[3] McCumbee, S. (2014). *The garden in my mind activity book*. Amazon: <https://www.amazon.com/Garden-My-Mind-Activity-Book/dp/1934490555/>

For parents and clinicians:

[1] Mather, Nancy & Goldstein, Sam (2015). *Learning disabilities and challenging behaviors: Using the building blocks model to guide intervention and classroom management, third edition*.

Amazon: <https://www.amazon.com/Learning-Disabilities-Challenging-Behaviors-Intervention/dp/1598578367/>

[2] Huebner, Dawn (2005). *What to do when you worry too much: A kid's guide to overcoming anxiety (What to do guides for kids)*.

Amazon: <https://www.amazon.com/What-When-You-Worry-Much/dp/1591473144/>

[3] Kroncke, Anna P., & Willard, Marcy & Huckabee, Helena (2016). *Assessment of autism spectrum disorder: Critical issues in clinical forensic and school settings*. Springer, San Francisco.

Springer: <http://www.springer.com/us/book/9783319255026>

Amazon: <https://www.amazon.com/Assessment-Autism-Spectrum-Disorder-Psychological/dp/3319255029/>

[4] Peters, Daniel B. (2013). *From worrier to warrior: A guide to conquering your fears*.

Amazon: <https://www.amazon.com/Worrier-Warrior-Guide-Conquering-Fears/dp/1935067249/>

[5] Foxman, Paul (2004). *The worried child: Recognizing anxiety in children and helping them heal*.

Amazon: <https://www.amazon.com/Worried-Child-Recognizing-Anxiety-Children/dp/0897934202/>

[6] Sattler, Jerome (2014). *Foundations of behavioral, social, and clinical assessment of children* (p.140).

Amazon: <https://www.amazon.com/Foundations-Behavioral-Clinical-Assessment-Children/dp/0970267126>

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Fluid-reasoning-ability

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