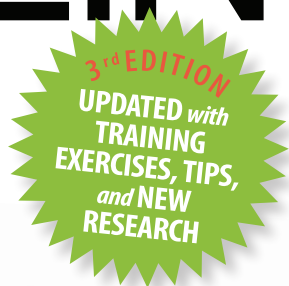


DR. KEN GIBSON *with* KIM HANSON and TANYA MITCHELL

UNLOCK THE EINSTEIN INSIDE:

**Applying New Brain Science
To Wake Up The Smart
In Your Child**



**UNLOCK
THE
EINSTEIN
INSIDE**

INTRODUCTION

When a task is given in school, why does one student take thirty minutes to complete it and another only eight minutes?

In this book you'll come to understand the answer: students approach the task with varying learning tools. These tools are called cognitive skills, and these skills determine the quality, speed, and ease with which individuals learn and perform.

There can be factors other than weak cognitive skills, but recent studies by the National Institute of Health, the U.S. Department of Education, and others indicate that the source of over 80% of learning problems and 88% of reading problems are due to weak cognitive skills.¹

I've written this book both to help you understand cognitive skills and to extend encouragement. Cognitive skills can be strengthened and improved, thereby reducing or eliminating learning and reading problems.

Eliminating learning problems is not just wishful thinking. In fact, our experience with over one hundred thousand students in LearningRx (North America) and BrainRx (outside of North America) demonstrates an average improvement of more than 3.4 years in learning skills and 3.5 years in reading skills—all in under six months (*see appendix B for 2016 results*).

There is hope for any parent whose child struggles in school. The frustrations of falling behind in reading, math, and other areas of learning can be diminished with the appropriate cognitive skills training.

Your child can succeed in school and start a journey of learning that will result in a college education and a successful career. Believe it or not, there is a little Einstein locked up in every child, but to release it you have to take the first step: have your child's cognitive skills assessed. The essential and critical next step is to strengthen the weak cognitive skills.

Although this book is written as applying to students, our research and studies demonstrate that it also applies to preschoolers through senior adults and many cognitive-based problems such as dyslexia, traumatic brain injury, and age-related memory loss.

Thank you for your interest in this important subject and thank you for taking an interest in your child's education. Turn the page and take a look at how you can help your child become a better reader and a more successful student. Help your child gain the skills and tools necessary to become smarter and more successful.

— **Dr. Ken Gibson**

UNLOCK THE EINSTEIN INSIDE

Applying New Brain Science
To Wake Up The Smart In Your Child

DR. KEN GIBSON
with **KIM HANSON** and **TANYA MITCHELL**

*Unlock The Einstein Inside:
Applying New Brain Science To Wake Up The Smart In Your Child*

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This book is dedicated to the more than one hundred thousand students who participated in our programs worldwide, which focused on developing solutions to learning and reading problems. And, to the over one thousand doctors, psychologists, educators, center directors—and their brain trainers and staff members—who have contributed and worked with us in testing and refining our cognitive training programs.

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EINSTEIN MOMENT

I never teach my pupils; I only attempt to provide the conditions in which they can learn. — A. Einstein

What if there were a little bit of Einstein in all of us? Even better, wouldn't you like to know how to unlock that Einstein in your child—that bit of genius and intelligence that you know is hidden away? Too often, the expression of great intelligence, ability, and potential is simply locked up behind an unseen learning barrier. You know there is something brilliant inside your child...you just don't see it work its way into everyday performance. The answer is to completely remove the barriers to successful learning. This bold approach may be the single biggest key to allow the real genius inside of your child to emerge.

HOPE FOR EVERY CHILD

Great news! There is genuine, obtainable hope for every child or individual struggling with a learning challenge. Regardless of the particular issues related to reading or other learning tasks, new, innovative techniques based on groundbreaking brain science and other research developments are now available.

In this book, you will receive an education on key issues related to learning difficulties.

Be forewarned: some of what you will learn here might be perceived as going against the grain. But it is by going against the established grain of how one deals with learning disabilities that real, practical progress is being made. I will also explain how parents can find the necessary help to turn their child's frustration and failures with reading and other academic subjects into greatly improved achievement and success—not only in school, but in all of life.

Does all of this sound too good to be true?

I understand. I know all about the frustrations, because for years I struggled with reading. By today's standards, I would have been considered dyslexic.

Because of my own struggle, I have been motivated

throughout my career to strengthen weak learning skills and develop learning and reading programs for people with learning disabilities.

And, because of my challenges as a child, I really want to help kids, like a boy we'll call Michael...

Michael is an active third grader who is full of life. He has a toothy grin and is affectionate and inquisitive. He can brief you with an astounding amount of baseball facts and details on his favorite players. He has many friends and often leads the impromptu soccer games on the playground.

In every observable way, Michael seems like any normal, healthy boy his age.

This perception changes, however, when we catch up with Michael inside his third grade classroom. Here he looks stressed: his eyes don't have as much sparkle as when he's kicking a soccer ball on the playground. He just finished his second math problem, whereas almost everyone else in class is about done with the five problems assigned.

Michael looks bored, yet worried. What if his teacher, Mrs. Sullivan, sends home another note to his parents? His mind and eyes wander. Michael sneaks a glance at Mrs. Sullivan. Uh oh, she's caught his eye, and she looks upset. She doesn't need to say a thing. He's heard before what she'll probably say now, "Michael, stop looking around and finish your work!"

Mrs. Sullivan is a fine teacher, and she truly cares about Michael, but he is trying her patience. While her other third grade students seem driven and apply themselves to the tasks at hand, Michael seems to sit idly,

daydreaming or simply choosing not to work.

Michael's parents are very concerned and find themselves in unfamiliar territory: his sister, Molly, who is three years older, is a star at school, and her teachers love her. So what's going on with Michael? How can two siblings be so different?

He seems so smart. He's almost a walking encyclopedia on baseball after all. Why can't he use that intelligence on his work at school? After several inconclusive meetings with the principal and counselor, Michael's mom and dad are wondering if he has a personality conflict with Mrs. Sullivan or some sort of a latent learning disability.

Anything that's even remotely connected to schoolwork makes Michael stubborn, angry, and sad. His mom and dad dread the after-dinner homework sessions that seem like they should have been done hours earlier.

Although the family has a modest income, his parents squeezed extra cash from the budget and hired a tutor for Michael. Unfortunately, tutoring didn't seem to make a big difference in Michael's grades or in his abilities to learn the material the first time, so his parents are questioning the value of trying tutoring again.

Michael and his parents are stuck in an all-too-familiar cycle—problems at school, hire a tutor, temporary improvement in grades, and then problems resurface at school again with every new subject or challenge.

Would it surprise you that over a third of America's school-age children have learning issues similar to Michael's...and that the problem is neither a lack of motivation nor improper instruction?

Michael and his fellow "strugglers" are not unintelligent nor

are they misfits because of intelligence issues. These kids began their school years excited and eager to learn. What's more, they have the potential to do well in the classroom.

So what's going on here? Why can't someone identify the problem and do something about it?

Good questions. There is an answer, although it's not considered mainstream.

Tutoring and special education are accepted, mainstream answers. The problem is most of the time they are the wrong solution.

What if, for example, you had a broken leg but your doctor didn't take an x-ray and merely prescribed an antibiotic or pain medication? Sure, it hurts and you don't want an infection, but a broken leg needs to be set and put in a cast so that the natural process of healing can take place. Antibiotics or pain medications are fine under certain circumstances, but alone, they can't mend a broken leg.

Likewise, when it comes to learning difficulties, without looking deeper than the symptom, the wrong remedy is often applied. So, what is the right treatment? Shouldn't it involve something like an x-ray to discover what's beneath the symptoms before treating the problem?

One of the major goals of this book is to offer and explain the correct solution to Michael's learning challenges—to first take a “learning x-ray” and then provide the appropriate treatment.

Before we look at answers, let's examine why today's educational environment in America typically does not know what to do with the Michaels of the world...

The Education Crisis

The day is coming when today's children will make every major legal, moral, and philosophical decision in our nation. Their

ability to sustain our nation’s values and way of life depends on the quality of their education, their integrity, and their character development.

This being the case, the successful development of children is and should be the logical goal of public and private education. This logical goal, however, begs the question: “As a nation, are we achieving this goal?”

Tragically, the answer is, “No.” The sad truth in America’s schools today is that almost 75% of the students moving through elementary, middle, and high school are not able to consistently experience academic success. Even sadder is the fact that many rarely or never experience it.

The National Assessment of Educational Progress (2017)¹, also known as The Nation’s Report Card™, is a continuing, representative assessment of what America’s students know and can do in various subject areas. What does our national grade look like for the three Rs—reading, writing, and arithmetic?

The Nation’s Report Card™

This is a study by the National Assessment of Educational Progress, also known as *The Nation’s Report Card*. It is the only nationally representative and continuing assessment of what America’s students know and can do in various subjects.

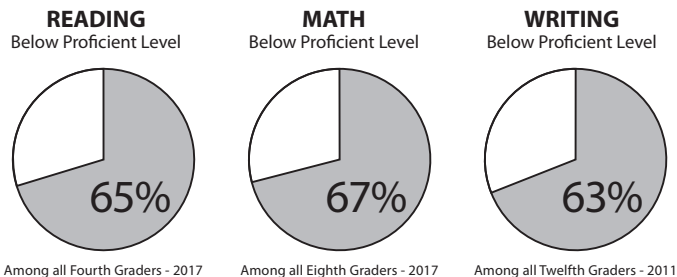


figure 1

First, three-fourths of our high school graduates finish twelfth grade without adequate skills in writing.

Additionally, by the fourth grade, more than two-thirds of the students read below grade level—and more than one-third of these students read at or below the second grade reading level! This score, unfortunately, does not improve: in the eighth grade, more than two-thirds of students are still below grade level in reading.

And what about math? The report is just as bad. By the eighth grade, more than seven out of ten students are performing below acceptable levels.

The reading and learning situation in schools in every state across the United States is in crisis. Evidence for this crisis comes in many forms:

- 85% of all juvenile offenders have reading problems.²
- At least 50% of the unemployed are functionally illiterate.³
- At least 20 million of the nation's 53 million school-age children are poor readers—about two out of every five children.⁴
- If a child is a poor reader at the end of first grade, there is an almost 90% probability that the child will be a poor reader at the end of fourth grade.⁵
- Three-quarters of students who are poor readers in third grade will remain poor readers in high school.⁶
- Three-quarters of the Fortune 500 companies provide remedial training for their workforce just to get adequate service from their employees.⁷

- Approximately 53% of undergraduates enroll in remedial courses in postsecondary education.⁸
 - Of the 29 member nations of the Organization for Economic Co-operation and Development (OECD), U.S. students are at or near the bottom in mathematics and science knowledge.⁹
 - Students in the lowest 25% of achievement are twenty times more likely to drop out of high school than students in the highest 25%.¹⁰
 - 41-44% of all adults scoring at the most basic level of literacy live in poverty, compared with only 4-8% of those who score in the two highest proficiency levels.¹¹
 - Expectations on teachers have increased dramatically due to a trend toward mandated non-teaching, planning, and administration duties. Teachers rarely have the time or the resources required for individual, remedial attention.¹²
-

Parents have a right to expect their children to be educated by schools, but schools alone cannot be blamed. A teacher's job is to teach academics, not to train cognitive skills. Parents play a vital role in making sure their children have the skills they need to learn when they are in the classroom. Parents and home life in today's America also play a role in the education crisis. Students often enter school with fewer practical skills than in generations past because many of today's households require dual incomes to survive in our current economy and to live according to today's standards. Because both parents frequently work outside the home, today's children lack the vital one-on-one learning time that only their parents

can provide. Today, children typically spend too much time passively watching television or playing video games—two forms of technology that working parents often rely on for their children’s entertainment.

Although what happens at home is crucial, schools still have our nation’s children at least seven hours a day, 180 days a year, which represents a tremendous opportunity to influence and impact their destiny. Successfully educating a generation of America’s kids depends, for the most part, on helping those kids get the most out of their time at school.

Parents send their children to school with high academic expectations, unaware that if their children falter, they are likely to be diverted from the mainstream and offered options that produce less than academic excellence.

Sadly, in addition to suffering from basic learning deficiencies, when children are frustrated and failing at school, they are harmed emotionally, psychologically, socially, and occupationally. In essence, their self-esteem takes a beating, which furthers the suffering on all levels.

America’s educational system faces almost insurmountable challenges, and all too often the victims of this learning crisis walk through the front door of our homes at the end of each school day. All too often we are left to feel that there is no hope for our children’s academic success. In fact, all too often we end up feeling hopeless.

SUMMARY

- There is hope for anyone struggling to overcome a learning difficulty.
- Over 70% of students in America's elementary, middle, and high schools experience sub-par academic performance in reading, math, and writing.
- America's teachers are being asked to bear more responsibility—especially among struggling students—than either time, training, or resources allow.



EINSTEIN MOMENT

We can't solve problems by using the same kind of thinking we used when we created them. — A. Einstein

MISINTERPRETING TEST RESULTS

When it's suspected that a child, like Michael, might have a learning disability, a teacher will often request that testing be administered to determine the exact problem. Such testing is not a bad idea, but if the underlying learning sub-skills are not individually considered, the conclusions are often incorrect, rendering the prescribed treatments faulty at best.

During fifty years of working with children and seeking to understand their frustrations with reading and learning, I've found there is one indispensable question: "Did the child finally overcome the learning problem?" Sadly, too often the answer to this questions is, "No."

How a child's learning struggles are dealt with at school will most likely depend on the tests he's given and how the results are interpreted. Incorrect interpretations of test scores will obviously lead to flawed treatment plans. The child who is struggling already will suffer the consequences of misinterpreted test scores and misprescribed treatment plans.

It is extremely important that parents understand the basic problems with standardized testing.

Let me warn you: this perspective on testing may be very

different from what you have heard or read before. As you seek to help your child, you may need to change your thinking about learning problems. The information that follows is enlightening and ultimately a source of great hope for anyone suffering from or dealing with a learning or reading disability.

Achievement Tests versus Intelligence Tests

Teachers often encourage administering achievement and intelligence tests to find out what's going on with children who struggle in the classroom. Here's a simple definition of what IQ and achievement tests show:

- **Intelligence (IQ) tests** measure cognitive mental skills and basic processing ability.
- **Achievement tests** determine how well a student is doing in academic subjects like arithmetic and social studies. An achievement test measures stored knowledge.

Obviously, achievement and IQ tests measure two different things—everyone agrees on that.

The problems begin with assumptions about the test results, how the results are interpreted, and how they are applied to individual students. For a child to receive help that is both positive and permanent, the test outcomes must be properly understood.

The Problem with the IQ Score

One of the primary issues about interpreting an IQ score is that errors commonly occur in the analysis of IQ tests.

Intelligence tests measure a variety of mental skills that are lumped together and called *intelligence*. The result is an IQ score. This number is supposed to be a measurement of a child's general ability. The problem is that the broad IQ score does

not reveal scores for each individual skill. In fact, an average or above average IQ score may result in the misleading assumption that all the underlying mental skills required for good learning or reading are equally high. If the student performs below expectations, it is likely that one or more of the necessary skills are significantly weak, thus signaling a learning struggle but not pinpointing the source of the struggle.

This is why IQ scores tend to either mask or overlook learning problems that deserve deliberate and specific attention.

To further illustrate the problem with IQ scores, here's an analogy: say your car's engine developed a clunking sound, and you took it to the repair shop to be checked. The mechanic performed five diagnostic tests and reported the results as average—just the way evaluating skills is done with IQ scores. On four of the tests the engine tested beautifully—a perfect 100%.

The fifth score, however, was 0%. If you have no air in your tires, your vehicle would go nowhere or at least not get very far without significant effort. If the mechanic told you that the car's overall score was 80%—better than average...there's nothing to fix—you would not be happy to hear the same old clunking noise in the engine as you drive away.

The point is, averages can conceal real problems. In the area of IQ scoring, children with an IQ of 120 (100 is considered average) might still have an undetected—potentially limiting—skill problem that could show up at any point during their education.

An average or above average IQ score may result in the misleading assumption that all the underlying mental skills required for good learning or reading are equally high.

Smart but a Poor Reader?

Many students that seem bright actually struggle with reading.

When tested, most of their cognitive skills test high—except for one: phonemic awareness, which is the ability to blend, segment, and manipulate sounds (*see figure 2*). Deficiency in this one skill can severely limit both educational success and work performance. (As you’ll read later, phonemic awareness can be improved to above acceptable levels in only weeks!)

COGNITIVE SKILLS PROFILE™

In this case, the low skill level in phonemic awareness pinpointed during cognitive testing indicates this child would be an extremely poor reader but still have an IQ well above average.

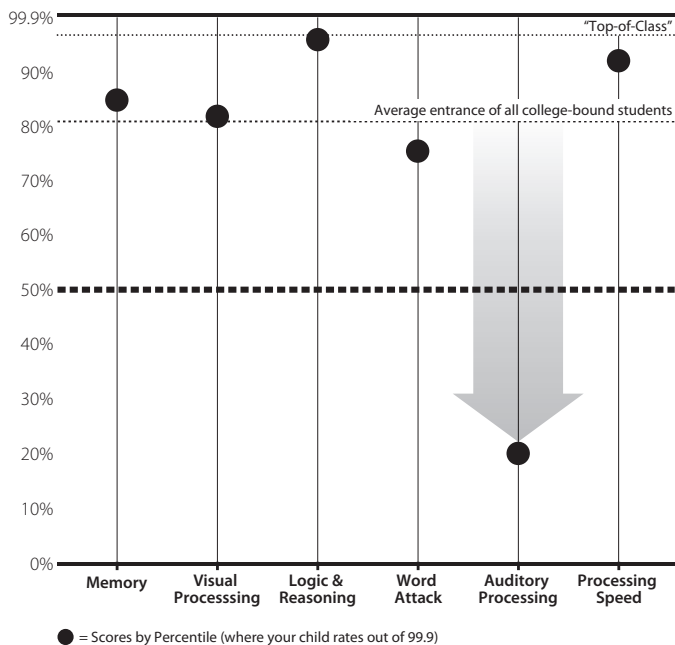


figure 2

When a student is tested for learning problems, the school’s personnel analyze the IQ test results and the achievement test

scores to determine if he has a learning disability. The IQ score is compared to actual achievement in school subjects like reading, writing, and math. If there is a sufficient discrepancy between those scores (the IQ score being about two years higher than the achievement), the student is labeled as having a learning disability. If both the IQ and achievement scores are low, the student is considered naturally slow, and in most cases will never receive any special help.

Current Responses to Learning Problems

When a child is diagnosed with a learning problem today, typically one of five approaches is prescribed. Here is a brief description of each:

Approach 1: Focus on Strengths

School programs often focus on a student's strengths, thereby helping a struggling child learn how to compensate for weak skills. Unfortunately, this is the wrong method if eliminating learning problems and helping the child long term is the objective. With this approach, a skill may be so weak that it can cripple and mask the strengths. Weak learning skills don't disappear by themselves. If it appears that the weak skills have disappeared, it's only because the child has temporarily found ways to compensate with stronger skills.

The tactic of focusing on strengths may appear to work, but eventually time and increased academic demands interfere with the act of compensating, and the skill weaknesses and related limitations will arise to plague the student.

Approach 2: Accommodate for Learning Struggles

A school's special education program is often an example

of an attempt to accommodate students' learning challenges. In other words, students are taught to adapt to or live with their learning problems.

Until about fifty years ago, special education was designed to only assist children with sensory, motor, and significant mental disabilities. Then, in the 1960s, learning disabilities were discovered.¹ Students were given the label of being Learning Disabled because they were falling behind academically. A huge growth in special education was the result.

Many special education programs promote the idea that grouping and labeling such learners puts the blame for below-average progress on something other than the student. This often compels teachers to lower their expectations for students diagnosed with Learning Disabilities (LD), Dyslexia, or ADHD. The problem is that teachers haven't been informed that a student's low academic performance is likely the result of weak learning skills that can be changed.

Special education programs also typically seek to accommodate struggling students with a primary strategy of lowering expectations to help those children get through school. Kids still compare themselves with peers outside of class, however, and special education students often suffer eroding self-esteem. This has the power to make their learning disabilities all that much more debilitating.

To succeed in school, children need the right learning skills. If those skills are not operating correctly, academic work can become increasingly challenging. Children can be mislabeled. When children are mislabeled and put in a special education program, they rarely get the

specific help they really need—the strengthening of their learning skills.

Approach 3: Tutoring

Tutoring provides extra help with an academic subject area. Often this is the approach parents take when they learn their child is struggling with reading or academics.

In certain instances, tutoring works well: when a child has fallen behind, for example, after moving from school to school or because of an extended illness. Sometimes gaps in a student’s academic knowledge have developed for unknown reasons. Extra help can quickly correct the deficit.

Tutoring may help the child keep up in various subjects, but just keeping up effectively means that the student will never get beyond the need for extra help. The child often ends up wearing the tutoring needed label throughout his school career.

If weak cognitive skills are the reason a child has fallen behind academically, tutoring will most likely just conceal the real problem. If you see that your child is not doing better in the subjects being tutored or that tutoring is needed year after year, more than likely, underlying learning skills need strengthening.

Approach 4: Medication

Another approach physicians use to help struggling students is prescribing medication.

Nationwide, the number of children being medicated is astounding. At least five million American children annually are receiving a prescription for Attention Deficit Hyperactivity Disorder (ADHD).² The Drug Enforcement Administration has stated that “...many

schools have more methylphenidate [Ritalin] stored on a routine basis than most pharmacies have in stock.”³ Stimulants such as Ritalin and Adderall (amphetamines) are the most widely used medications for ADHD and are often effective in reducing inattention, impulsivity, and hyperactivity, although the success rate of these drugs is hotly debated.

When underlying skill weaknesses are undetected, an ADHD diagnosis all too often becomes a way out, not for children, but for frustrated teachers and concerned parents. Children are sitting in classrooms trying to do what they cannot do—read, learn, and master academic subjects. No wonder their attention wanders. When students can’t keep up and continually fail, they become inattentive, tend to daydream, and develop bad attitudes. Sometimes they act out and distract other students. Boys in particular become class clowns or troublemakers. They can’t sit still or keep from talking. Reading or doing math problems is impossible because certain key cognitive skills are simply deficient.

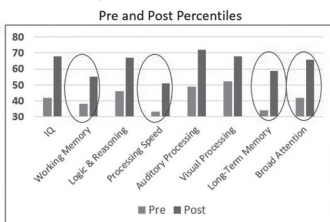
When a child has attention issues, studies have shown that it is not only attention skills need to be addressed. A cluster of skills like working memory, processing speed, and long term-memory play significant roles in the ability to maintain attention and focus. All skills in the cluster should be addressed for true change.

Attention Deficit Hyperactivity Disorder

Number of Clients: 5,416

Lowest Pre-scores:

1. Working memory
2. Processing speed
3. Long-Term Memory
4. Broad Attention



Moore, A., & Wainer, H. (2016). *2016 LearningRx Client Outcomes and Research Results*. Colorado Springs, CO: Gibson Institute of Cognitive Research.

We must acknowledge that a percentage of students do have genuine cases of ADHD; however, the condition is highly over-diagnosed. Parents and educators must share responsibility for an over-reliance on the ADHD label. In many cases they simply don't understand that there is an alternative explanation. What's often going on is that a child, discouraged and frustrated because of weak skills, is simply acting out the frustration.

Rather than turning to treatment with drugs, educators, parents, and physicians should seek solutions that eliminate the cause of the child's learning problem where available. Individual skills testing will identify these cases.

Approach 5: Attack Weak Skills through Training

As you have seen, the first four approaches for helping a child with a learning disability have significant drawbacks. To ignore, work around, or medicate the cause of the problem is, in all likelihood, guaranteeing that the problem will never be solved.

This last approach is the only option that does not ignore underlying learning weaknesses, cause parents to lower expectations of their child, or ask a doctor to prescribe medication. Strengthening a child's weak skills is the option that can bring almost immediate results and have a lifelong impact on learning.

A Better Way: Cognitive Skills Testing

An analysis of basic cognitive skills is the first step in obtaining a lasting, positive solution for most struggling students. Cognitive skills are the foundational skills or tools a child uses to learn. These are not the same as the academic subjects taught in school; rather, cognitive skills are the mental tools needed to

process and learn what is taught in an academic environment. These skills are also called *mental skills*, *intelligence*, *learning skills*, *learning tools*, and *processing skills*. These terms all refer to the same cognitive skills that are needed for consistent success in school, in the workplace, and in all areas of life.

For those students who struggle to learn, there is hope! Cognitive skills can be identified, targeted, and improved. Mental skills can be improved. Abundant evidence from brain research shows that the mind can continue to grow, not just in young children, but well into an individual's senior adult years. I like the sound of that, don't you?

Think Back to Michael

More than likely, after testing, Michael will be classified as having a learning disability and may end up in special education. His homework will be modified and other academic accommodations will lower the standards normally set for children in the classroom. He may experience some short-lived relief by not facing math problems, but that can't change what life actually requires. How many career limitations, or even job rejections, will he face as an adult because of the strategy of accommodations set forth in elementary school and as he enters middle school? What parent would not want to avoid a lifetime of struggle and disappointment for his or her child?

The weak areas need to be attacked, not avoided. Michael's weak skills can be improved, which will improve his potential in every area of life. His smile and sparkle—a sign of healthy self-esteem and confidence—can return in the classroom setting as well. Like Michael, all students are able to improve their capabilities. I have seen thousands of students—from all backgrounds and areas of the country—dramatically improve their learning skills after having weaknesses identified and properly trained.

You may be asking, “Why can’t teachers teach underlying learning skills? Isn’t that what school is for?” Theoretically, they could, but first, it isn’t their job, and second, effective cognitive skills training requires focused attention and immediate feedback in a one-on-one setting. Most teachers have not been given the specific training necessary, nor do they have the time or resources to devote that kind of sustained, one-on-one effort to individual students.

Cultural and political factors—plus tight budgets—are also impacting the choices schools can make.

True Solutions

This is why I am committed to share the knowledge I have gained about learning and reading struggles with parents today. This knowledge is based on the analysis of an enormous amount of recent research on the causes of learning and reading problems. Through research partners I have also monitored the development of a variety of clinical treatments. In fact, more than seven hundred learning professionals and one hundred thousand students have partnered with me in the development of programs that either greatly diminish learning problems or, in many cases, eliminate them altogether, thus securing a better future for all involved.

SUMMARY

- IQ scores and academic testing do not reveal underlying learning skill deficiencies.
- The most common approaches to correcting learning problems are not effective.
- Strengthening weak cognitive skills is the best way to permanently solve learning difficulties.



EINSTEIN MOMENT

*Education is what remains after one has forgotten
everything he learned in school.* — A. Einstein

UNDERSTANDING LEARNING DIFFICULTIES

Students struggle to learn for a reason. Most often, the key to solving a persistent learning challenge is to strengthen a person's basic processing or cognitive skills set.

This chapter will answer foundational questions that are of interest to every parent who has a child with a learning disability:

1. What are cognitive skills?
2. How are cognitive skills like learning tools?
3. How do cognitive skills impact performance and success?
4. How can we determine the strength of cognitive skills?
5. Which cognitive skills are most important for success?

The answers to these questions are truly encouraging. If there is an identifiable cause for the learning struggle, and if that cause can be treated successfully, the learning difficulty can be improved and likely solved! Yes, it's true—learning difficulties can often be permanently overcome.

1. What Are Cognitive Skills?

I want to emphasize again that cognitive skills are not at all the same as the subjects taught in the classroom at school. Those are academic skills, which consist of knowledge about different subjects like math, history, and government.

People are often surprised that there's a difference between cognitive and academic skills. Actually, there's a big difference. Cognitive skills are the mental capabilities you need to successfully learn academic subjects. Underlying cognitive skills must function well for you to efficiently and easily read, think, prioritize, understand, plan, remember, and solve problems.

Throughout this book you will encounter several terms that all mean essentially the same thing: *cognitive skills*, *mental skills* or *tools*, *underlying skills*, *learning tools* or *skills*, *processing skills*, and *intelligence*. Don't be confused! These terms are synonymous in our vocabulary about learning. For our purposes in this book, please keep in mind that cognitive skills are the individual mental skills we use to learn.

Here is a simple formula to help you understand the importance of strong mental skills:

- When cognitive skills are strong, academic learning is fast, easy, efficient, and even fun.
- When cognitive skills are weak, academic learning will be, at best, a struggle.
- Cognitive skills are, therefore, the essential tools for learning.

Keep these points foremost in your mind as we examine mental skills more closely.

Mental or cognitive skills may seem a bit mysterious because they are not easy to see or recognize by themselves. But, without

our underlying cognitive skills, you and I could not process the information we receive from sources around us through our senses of sound, touch, sight, taste, and smell.

When you understand where cognitive skills fit into everyone's learning process, you can see how truly important they are—which leads to another critically important truth: Cognitive skills can change! That's right, cognitive skills, learning skills, underlying skills, learning tools (no matter what they are called) can be improved, strengthened, and enhanced, regardless of a person's age.

No one needs to be stuck forever with the underlying skill levels they have now. There's no reason why you, your child, or someone you care about can't become a better learner.

EINSTEIN POINT



It's not how much you know (the information that has been crammed into your head), but how effectively you process the information you have received that counts first. Cognitive skills are the processors of this incoming information.

In other words, cognitive skills are the learning skills used to:

- 1) attend to and retain information;
- 2) process, analyze, and store facts and feelings;
and
- 3) create mental pictures, read words, and understand concepts.

Exploring How We Learn

Learning is primarily a cognitive function. All information we receive must be processed with a variety of cognitive skills. Try

THE LEARNING MODEL

How we use cognitive skills to learn

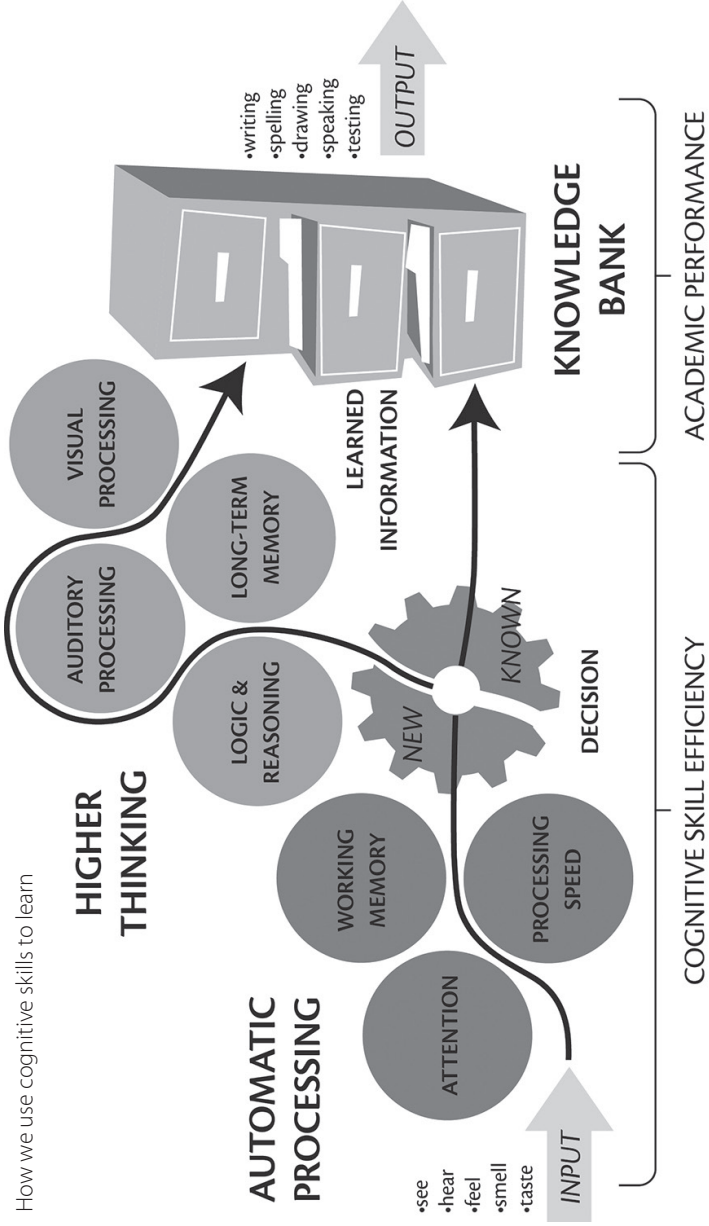


figure 3

the following exercise. Refer to the Learning Model (*see figure 3*) to better understand the learning process.

To begin, as fast as you can, spell your first name out loud...

Let's examine the cognitive skills it took to complete this simple task. To do this, Input came as you read or heard the instructions, "Spell your first name out loud." As a part of Automatic Processing, you gave Attention to the request, held it in your Working Memory, and began to Process it. You then chose to respond to it. You made the internal, executive Decision that this was an easy request; one that you didn't really need to think about, because you already had the answer stored in your Knowledge Bank. You drew the appropriate information (the spelling of your name) directly from your Knowledge Bank, and spoke it as Output without hesitation. This enabled you to handle this exercise quickly and easily because it was previously Known or familiar information.

Now try this: as fast as you can, spell the last name of the first American president backwards.

Again, Automatic Processing enabled you to receive Input; you had to read or hear, attend to, process, and remember the request. But this time the answer wasn't automatic—instead, you made the internal, executive Decision that something about this request was New or unfamiliar. You needed to think about it using one or more of your Higher Thinking skills. You had to come up with a plan of action (using Logic and Reasoning). Your plan may have been to create a mental image (using Visual Processing) of the word "Washington." This may have required you to repeat the name a few times to hear the separate sounds (using Auditory Processing) and then retrieve the letter codes (using Long-Term Memory) that

represents those individual sounds before creating the word image and calling out the letters (as Output). Using all these skills, you laid down an imprint in your Knowledge Bank. Repeating this activity a number of times would allow you to spell “Washington” more automatically and make the task of spelling other words backwards much easier.

This imprinting process can be illustrated by imagining that you had to walk from your house to the mailbox through fresh, deep snow. The first time, the trip would be a challenge in itself and would take extra concentration and effort. The first trip would leave a definite impression. After several similar trips, the path would be so deep and clear that you could walk it while reading your mail, without thinking about where you were going. If you were to do the exercise above (or any mental task) enough times, with enough variety and intensity, the imprint those exercises created would become a solid, permanent mental pathway.

Successful learning requires coordination and cooperation between Automatic Processing and Higher Thinking cognitive skills. Here’s how weakness in any of these mental skills might affect your performance:

- If **Attention** is weak you may have never fully heard the request or may have been distracted and lost your focus.
- If **Short-Term Memory** is weak you may have forgotten the request before you responded, maybe needing the request repeated.
- If **Processing Speed** is slow the request may have seemed too complex, requiring the need to have it repeated.

- If **Logic and Reasoning** is weak you may have failed to come up with a solution.
- If **Auditory Processing** is weak you may have been unable to unglue sounds in “Washington.”
- If **Long-Term Memory** is weak you may have been unable to remember letters that represent the sounds in “Washington” or may not have been able to recall who the first president was.
- If **Visual Processing** is weak you may have been unable to create a picture of the word in your head.

The point is that if any one of these cognitive skills is weak it will hinder your performance.

2. How Are Cognitive Skills Like Learning Tools?

Strong cognitive skills make learning and working easier, faster, and more efficient.

To a large extent, the quality of a child’s learning tools determines how he or she will do at school. Have you ever attempted a building project without the right tools? How frustrating and ultimately expensive that can be! It’s far easier and more efficient to build a house with top-quality power tools than with only a simple hammer and screwdriver.

The process of learning is similar. Effective learning is dependent on the efficiency of underlying learning tools.

In the 1980s, scientists began to discover and document facts that prove that individuals don’t have to settle for the level of cognitive skills efficiency they currently possess. Thinking and learning tools can change and improve. This means anyone can learn and work easier, faster, and more efficiently. Modern science has made it possible to determine if our brain is not functioning properly and how the glitch can be corrected. We can literally make our brain run better.

Science has aided our understanding of how the brain functions with brain studies using, among other tools, functional Magnetic Resonance Imaging (fMRI). This high-resolution, soft tissue imaging process allows us to actually watch the brain at work. An fMRI can show changes in blood oxygenation thanks to the magnetic properties of hemoglobin in blood. When the brain is at work, increased blood flow is visible where neurons are actively processing.

Studies utilizing fMRI technology can document active areas in the brain when poor readers and good readers attempt to read. An interesting pattern emerges (*see figure 4*). Good readers use pathways mostly located in the back of the brain (the occipito-temporal region, the area responsible for automatic decoding) with limited activity in front (Broca's area and the parieto-temporal system). Poor readers, however, show

underactivation in the back of the brain and overactivation in the front (the area also used by new readers to analyze letter shapes and unfamiliar words).

By pinpointing the area of the brain used most heavily while reading, we learn that beginning and poor readers are forced to use slower pathways on virtually every word, while skilled, fluent readers use a more automatic route to see a

word and correctly assign pronunciation and meaning.¹ This understanding allows us to measure the effectiveness of various

SCIENCE REVEALS BRAIN ACTIVITY WHILE READING

Brain activity differs between good readers and poor readers.

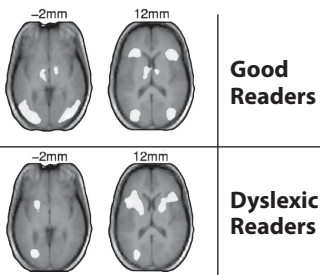


figure 4

remedial reading strategies. Evidence continues to prove that exposure to intense, effective training in reading can actually create better mental tools for reading. This is shown by the transfer of brain activity from the areas common to poor readers to the more efficient automatic processing centers naturally used by good readers.

Better tools equal better, faster work. Better cognitive skills equal better, easier, faster learning. Better learning leads to greater academic and work success, higher self-esteem, and wider choices and options in life.

3. How Do Cognitive Skills Impact Performance and Success?

Similar to a medical doctor's use of ultrasound or an fMRI, it's possible to snap a picture of our underlying cognitive skills. Proper testing allows us to figure out the cause and effect relationships between our learning skills and the academic and work activities they directly impact.

Following are two examples of weak learning (or cognitive) skills:

EXAMPLE 1:

If a student struggles to sound out and spell words, he or she almost always has weak auditory processing skills. To sound out and spell words, it is essential to have strong auditory processing skills, which allow one to blend, segment, and analyze sounds.

- The cause of the problem: weak blending, segmenting, and sound analysis.
- The effect of the problem: poor spelling and reading.

EXAMPLE 2:

To solve a word math problem, it's essential to picture (visualize) the situation. If a child has difficulty visualizing, he'll likely have problems with word math problems, memory, and comprehension.

- The cause of the problem: weak ability to create mental visual images.
 - The effect of the problem: poor memory, comprehension, and problem solving.
-

There is a direct connection between specific skills and successful learning. In the above examples, the student can expect to improve his ability to read and spell words after correcting and strengthening the underlying skills of blending, segmenting, and sound analysis. Solving word math problems will be easier after improving visualization skills.

This leads to an obvious fact. If you can identify a child's cognitive skill weakness(es), you can then apply training to correct the underlying problems.

4. How Can We Determine the Strength of Cognitive Skills?

Thankfully, we have two options for assessing the strength of cognitive skills: observation and testing.

OPTION 1: Observation

By investing considerable time and effort, a parent or some other observer can list all the activities that are difficult for a child. It is then a relatively straightforward process to determine which underlying skills are critical to successfully complete those activities. Most likely one or more of the mental skills is weak and is therefore the

cause of the student's poor performance.

The problem with this kind of observation and analysis is that it might take quite a while (years, in fact) to develop the observation capabilities needed. Furthermore, it requires comprehensive knowledge of cognitive skills and the part each skill plays in academics and other pursuits. Most people don't have adequate knowledge of cognitive skills for such extensive observation. Plus, even with that knowledge, you would still want to test those skills objectively to confirm the accuracy of your observations and evaluations.

To illustrate, think about it this way: even a highly skilled auto mechanic does not depend solely on the symptoms you tell him about, or even what he hears, smells, and sees when you bring your car in for service. Instead, he takes the car into the garage, connects it to sophisticated diagnostic equipment, and goes through specific tests to see if his first impressions were accurate. It's exactly the same with cognitive skills. Objective testing, instead of relying only on observation, is the most reliable way to identify and measure underlying cognitive skill strength.

OPTION 2: Testing

Properly designed tests directly probe a person's underlying mental skills. In the field of learning improvement through cognitive skills training, the primary objective of testing is to identify the cause(s) of a limitation in learning and performance. By identifying and measuring individual skill levels, the quality of a student's learning tools can be determined.

As discussed earlier, academic or achievement testing is not the same as cognitive skills testing, and it's

important to not confuse the two. The measurement of a child's academic skill level is found through achievement tests, grades, and performance related to peers. Cognitive testing identifies and measures specific levels of underlying skill performance. It does not measure how well you remember the dates of the Civil War. It measures the efficiency of your ability to store and recall the information.

Several testing systems measure cognitive skills. However, beware of any cognitive skills testing that only reports a single score (such as an IQ score). A single score may be an average of up to nine scores, but that is all it is—an average. These single score tests, reported as an IQ, do little to identify and pinpoint the particular strengths and weaknesses that are averaged together to

THE GIBSON TEST OF COGNITIVE SKILLS AND WJ IV COG HAS A NUMBER OF SUBTESTS, EACH MEASURING A DIFFERENT SKILL:

- Processing Speed
 - Auditory Processing
 - Visual Processing
 - Logic and Reasoning
 - Working Memory
 - Long-Term Memory
 - Attention
-

create the score. Because of a lack of specific information, they often mask both the learning skill problem and the possible solutions.

Specific knowledge of individual skills is needed to attack and correct the weaknesses that are specifically hindering learning. Two of the most highly regarded and comprehensive cognitive skills test battery are the Gibson Test of Cognitive Skills and Woodcock-Johnson

IV (WJ IV COG). They identify and test a wide range of underlying cognitive skills so that specific causes of learning difficulties can be determined.

Understanding Key Cognitive Skills

The long-term, practical value of such an understanding of a child's cognitive skills is immeasurable. You will finally have answers to the two most important questions that arise when facing a learning difficulty:

1. "Why does this trouble exist?"
2. "What can I do to overcome it?"

The Gibson Test of Cognitive Skills and the WJ IV COG tests were designed to empower concerned parents and professionals with accurate and understandable measurements of specific cognitive skills. This information, as well as the conclusions of a professional consultation, will clearly reveal the specific options available to successfully overcome the learning challenge rather than to simply manage a student's struggles in the classroom.

EINSTEIN POINT

The Gibson and WJ IV tests are available through LearningRx Training Centers in North America, BrainRx centers worldwide, and the Gibson Test online. Testing is normally only a fraction of the fee charged by other professionals because the emphasis is on training skills, not just on testing and diagnosis.

(See **LearningRx.com**, **BrainRx.com**, or **GibsonTest.com** for testing and contact info.)



Without question, strong cognitive skills are critically important to successful learning. Let's take a closer look at some of these cognitive and processing skills that help a child perform better in school and throughout life.

5. Which Cognitive Skills Are Most Important for Success?

Since the brain is such a sophisticated organ, learning is a complex process. Many interrelated cognitive skills contribute to academic and occupational success.

Broadly categorized, these critical skills include the following:

- Attention
- Working Memory
- Processing Speed
- Long-Term Memory
- Visual Processing
- Auditory Processing
- Logic and Reasoning

These skills are interdependent. Often they overlap in their work with other skills, as all the bits of information entering the mind are processed and acted upon.

The detailed list that follows shows how each skill connects to the learning task it enables. The strength or weakness of one skill impacts the general effectiveness of other skills.

Read through this list carefully. You will see how each skill makes a contribution and needs to function well for overall learning to be easy, fast, and successful. You will also realize why the causes of both learning success and learning difficulty are not as much of a mystery as they may seem.

Attention

- Sustained Attention enables you to stay on task for a period of time.
- Selective Attention enables you to stay on task even when a distraction is present.

- Divided Attention allows you to handle two or more tasks at one time.

What to watch for: The inability to stay on task for long periods of time, to ignore distractions, or to multi-task will limit the student's other cognitive skills—which will impact all academic areas.

Working Memory

- Working Memory is the ability to retain information for short periods of time while processing or using it.

What to watch for: Learning suffers if information cannot be retained long enough to be handled properly.

Processing Speed

- Processing Speed is the rate at which the brain handles information.

What to watch for: If processing speed is slow, the information held in working memory may be lost before it can be used, and the student will have to begin again.

Long-Term Memory

- Long-Term Memory is the ability to both store and recall information for later use.

What to watch for: If the ability to store and retrieve information is poor, wrong conclusions and incorrect answers will result.

Visual Processing

- Visual Processing is the ability to perceive, analyze, and think in visual images.

- Visual Discrimination is seeing differences in size, color, shape, distance, and the orientation of objects.
- Visualization is creating mental images.

What to watch for: When visual imagery is poor, tasks like word math problems and comprehension, which require seeing the concept/object in the student's mind, are difficult.

Auditory Processing

- Auditory Processing is the ability to perceive, analyze, and conceptualize what is heard and is one of the major underlying skills needed to learn to read and spell.
- Auditory Discrimination is hearing differences in sounds, including volume, pitch, duration, and phoneme.
- Phonemic Awareness is the ability to segment sounds, to blend sounds to make words, to break words apart into separate sounds, and to manipulate and analyze sounds to determine the number, sequence, and sounds within a word.

What to watch for: If blending, segmenting, and sound analysis are weak, sounding out words when reading and spelling will be difficult and error-prone.

Logic and Reasoning

- Logic and Reasoning skills are the abilities to reason, prioritize, and plan.

What to watch for: If these skills are not strong, academic activities such as problem solving, math, and comprehension will be difficult.

Learning is Complex but Not Mysterious

Learning truly is a complex process—perhaps more complicated than you may have realized. But it is not necessarily a mystery. The good news is that with the right information and training, anyone can learn better, faster, and easier. With the correct approach to strengthening cognitive skills, learning challenges can be conquered.

So which learning skill is the most critical? To your child, it is the weak skill—that is the skill most likely causing him or her to struggle.

SUMMARY

- Cognitive skills are underlying mental abilities and are not the same as the academic knowledge acquired in the classroom.
- Cognitive skills can change and improve.
- Malfunctioning cognitive skills make learning difficult and frustrating.
- Specific cognitive skills testing is the best way to identify which cognitive skills are the cause of a learning problem and need strengthening.
- With the right information and training, every child can experience learning that is easy, fast, and fun.



EINSTEIN MOMENT

*Logic will get you from A to B. Imagination will
take you everywhere.* — A. Einstein

THE INCREDIBLE, EVER-CHANGING BRAIN

Due to improved research techniques and cutting-edge technology like functional Magnetic Resonance Imaging (fMRI brain scans) it's now possible to literally see and understand what's going on in our brains. We can see the impact of skills being used as it is happening! As we get more familiar with the underlying science of how the brain works and how it can change, we understand that with the right training it's possible to get remarkable improvements in cognitive skills. It's also easy to see how the improvements impact our learning and reading abilities.

Since the 1980s, astounding developments in brain research have better revealed not only how the brain works but also how it can be changed and developed. This under-publicized revolution in understanding opened many new doors to the best ways to train learning skills. If your child or someone you care about has a learning difficulty, take heart! These discoveries about the brain will give you confidence that those difficulties can be overcome.

I call these scientific breakthroughs in brain research an under-publicized revolution because much of this research has not found its way into the mainstream thinking of educators,

particularly those concerned with helping students who have learning difficulties. This may be your first time reading or hearing about many of these findings, too—even if you’ve been searching for answers to learning difficulties for some time now.

Research shows that neighboring neurons are regularly called on when a person must learn a new task. When the task is mastered, the borrowed neurons go back to other duties.

Here are some facts that you will likely find encouraging.

The structure of the brain is not permanently fixed at birth.

New evidence confirms that the brain’s mental skills are constantly changing (*see figure 5*). The brain operates through a complicated arrangement of nerve cells or neurons. Groupings of neurons accomplish specific tasks. Research shows

that neighboring neurons are regularly called on when a person must learn a new task. When the task is mastered, the borrowed neurons go back to other duties.

Neuroplasticity is a relatively new word that defines nerve cells’ ability to change and modify their activities in reaction to changes in their environment. Repetition or practice of a task strengthens the neuronal connections and increases the certainty of a more accurate recall of task activities when needed.

As an example, research studies monitoring the brains of violin players by fMRI scans reveal that areas of the brain involved with the left hand (used for fingering) are substantially larger. Thus the part of the brain used for this task, the motor cortex, grows to accommodate the demands of learning. Once the skills are mastered and become more automatic, the area needed in the cortex is reduced and the brain gears up to receive a new learning task. Rather than being locked into a fixed structure, the brain can adapt to each new learning challenge.¹

The brain deals with expectations and incomplete data.

Change in Mental Skills with Age

This chart shows natural changes in three cognitive skills over a lifetime. Abilities peak between age twenty-five and thirty.

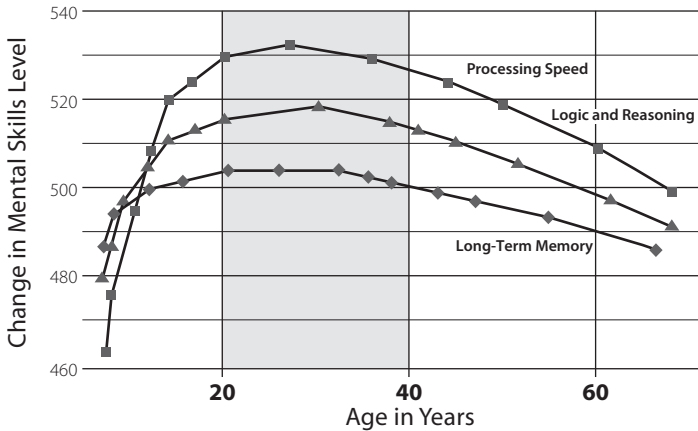


figure 5

Input to the brain shapes the way it prepares for subsequent input. It arranges itself physically and chemically to receive more information. Visually, if insufficient information is provided with input, the brain uses its data bank to fill in the blanks.

If you see the left front end of a car in your car's rearview mirror, you assume that a complete car is in the right lane next to you. However, if your brain had insufficient background information, it might fill in the blank incorrectly.

Here's another all-too-common example: whole word reading techniques. When a student is taught to read the whole word they are many times forced to guess an unfamiliar word based on the context of the story and whatever illustrations may provide clues. It's not unusual for young readers to fill in the blank by guessing wrong. That's especially true (and discouraging) for a student with weak cognitive skills.

Attention is More than Just Staying on a Task

Attention gives us several ways to constantly and appropriately monitor our environment. General monitoring allows us to be vigilant. Arousal attention helps us to rapidly get ready to act and prepares us to move. Attention also makes us able to determine the novelty and the potential of a given situation. At the highest level, our attention helps us make decisions.

Attention involves a number of processes including filtering out, balancing multiple perceptions, and assigning emotional importance to these perceptions. These processing decisions are determined by your interest, alertness, and apprehension.

For example, a mother concerned about a sick child will be more alert for changes in the child's breathing than in the sounds of her spouse talking on the phone, her other children playing outside, or the dialogue from a sitcom airing on the television in the next room.

Selective attention is the ability to select and focus on what we attend to. With it we block out or shut down input that is unnecessary or should be ignored. This capability keeps our brain from experiencing overload.

Autistic children, for example, do not have this normal capability. To keep from being overloaded, they shut down or shut out input and withdraw from a world that typically offers massive stimulation.

In a similar manner, automobile drivers can focus their visual attention more fully in heavy traffic if they reduce their auditory input (e.g., turn off the car radio).

Your Brain has a CEO

The CEO function involves the highest level of attention. It's the planning or decision-making function in your brain that tells you to take action or to react in relation to your goals. It allows you to determine whether what you see, hear, or feel is

important and whether to pay attention to it or ignore it.

The hyperactive/attention (ADHD) deficit response is the brain's general inability to respond normally to its CEO function. Consequently, it ignores its own advice and decides to engage in activities that are disorderly and inappropriate. This happens because an individual's inability to sustain attention causes something like an addiction to the present.

An ADHD child gets hooked on immediate feedback. For that child, the long-range impact is irrelevant. Therefore, individuals contending with attention problems go for immediate pleasure in spite of the consequences.

Forgetting the Right Things Can be Good

Working memory works with attention to keep track of input.

Working memory operates in the brain's frontal lobe. This system evaluates incoming information and keeps attention moving forward. In working memory, information is held and evaluated, and a decision is made to discard the information or save it for use at some future time.

Working memory is in operation, for example, when adding 77, 89, and 65. After totaling the first column and getting a sum of 21, you need to keep the 2 in your mind to add to the total of the second column. Working memory allows us to work faster by retaining certain information that we'll soon need to reuse instead of taking additional time to write it down or redo a task because we forget something.

One of the major functions of working memory is to prevent useless information from encoding to long-term memory. Unnecessary information can distract our focus from what really matters to us. Our brain's working memory screens out peripheral input such as horns honking and dogs barking, and prevents them from getting into and filling up long-term memory.

Working memory and long-term memory work together

to give us the capability to prioritize input. Forgetting can be frustrating, even embarrassing, but interestingly enough, it's necessary. If it weren't for forgetting, our brains would be jammed with trivia!

Long-Term Memories are Networked

After a decision is made to keep the data, it is forwarded to different parts of the brain and sorted by smell, color, shape, and so forth. Emotion plays an important role in this process: the stronger the feelings caused by the memory, the easier it will be recalled later. Reinforcement by practicing or drilling also strengthens long-term memory.

Bits and pieces of a single memory are stored in different networks of neurons throughout the brain. The formation and recall of a memory is influenced by mood, surroundings, and the circumstances at the time a memory was formed or retrieved. A memory may be a little different each time we remember it.

Scientists have noted that we add interpretation during the transfer of information between working memory and long-term memory. This means we can be certain that we can't be really certain about our memory.

Memories Can be Improved

In a process scientists call long-term potentiation, some memories are encoded and strengthened (and others weakened) each and every time the repetition of a new experience causes neural firing across synapses between nerve cells.

Practice, practice, and more practice makes the bonds between surrounding cells increasingly stronger and gets more neurons involved. The result is a whole network of neurons taking part in remembering the skill, word, or event—regardless of whether we're learning a new language, perfecting our golf game, or learning new math concepts.

Memory can remain strong even as we age. The adult brain remains resilient, adaptable, and ever eager to learn. David Snowden, a professor at the University of Kentucky, has observed this capability in research entitled *The Nuns of Mankato*.² His studies have included the School Sisters of Notre Dame, a convent in Mankato, Minnesota. The nuns routinely live into their nineties, with many reaching one hundred. Their lives are mentally rigorous and their occupations meaningful.

Memory can remain strong even as we age. The adult brain remains resilient, adaptable, and ever eager to learn.

Supporting Snowden's observations, the PET (Positron Emission Tomography) scans done by other researchers have shown the frontal lobes of twenty-five-year olds and seventy-five-year olds equally illuminated following the same memory tests. This research has shown that intellectually challenging activities stimulate dendrite growth, which adds neural connections in the brain. The brain modifies itself to accommodate learning challenges regardless of age.

Dyslexia is a Brain Dysfunction that Can be Corrected

This fact is really important to understand. Dyslexia simply means trouble with reading. Trouble comes in a wide variety of ways. For instance, some dyslexics have difficulty with certain short consonants (like b and d) while many others have problems distinguishing the vowel sounds. Cognitive training helps them better identify, separate, blend, and analyze the phonemes (sounds) of language more distinctly and accurately.

Researchers indicate that during the first six months of life, when sounds are being hardwired in a baby's brain, nerve cells may clump up in the language center, thereby interfering with the ability to receive and transmit certain messages.³

Fortunately, this need not be a permanent condition.

Because of the extreme adaptability of the brain, cognitive training can restructure these pathways, removing the logjams to allow messages to flow more smoothly.

With the advent of fMRI we can see the change in interconnections in the brain as a result of specialized cognitive skills training.⁴ For example, in a good reader, an area in the occipito-temporal region is most active, while in a poor reader, the activity is scattered in numerous areas. After a period of auditory-based cognitive training, the previously sparse patterns of activity in a poor reader (as revealed by fMRI imaging) are transformed into the pattern similar to that of a good reader's fMRI. The brain changed, and we can see it!

Parents Influence Brain Development

The quality and depth of parental input seems to matter a great deal. Affirmative feedback and the amount of time spent in conversation with children—in particular during their second year—appears to have a major impact on brain development.

In research by University of Chicago Psychologist Janelle Huttenlocher,⁵ comparisons between professional, working-class, and welfare families, reveal their children heard 2,100, 1,200, and 600 words an hour respectively. Furthermore, positive feedback came an average of thirty times an hour for professionals, fifteen for working-class families, and just six times an hour in welfare families.

The quality and quantity of this input is directly correlated with brain development and vocabulary in later years. Some children naturally catch up. Others do not.

Practice and Rewards Also Change the Brain

As mentioned earlier, monitoring the brains of violin players by fMRI reveals areas of the brain involved with the left hand

(used for fingering) to be substantially larger. The motor cortex grows to accommodate the demands of learning. Practice makes for brain change. It has also been conclusively revealed that reinforcement makes the memory bonds stronger because more neurons learn the code. That's why rewards, including praise, are a part of any successful training of new skills.

Sleep is Important for Learning

Even while we sleep, our brain is at work sorting and storing data in our memory. Research indicates that sleep deliberately interrupted at certain points in the sleep cycle can block learning. A solid night's rest is essential if the brain is to have sufficient and appropriate time to organize and form the information it takes in during waking hours into lasting memories.

What do these facts mean? Science has opened up new possibilities for learning improvement.

Perhaps the most important encouragement science has provided is that we need not settle for what appears as a limitation or a lifetime disability. The human brain is capable of amazing change and modification. An individual's cognitive skills can be tested for relative strengths and weaknesses; the brain is capable of expanding to accommodate greater cognitive capacity. By training the brain to work faster and more efficiently, learning success can be dramatically improved.

We can set new courses for ourselves, acquire new skills, and set our sights on new horizons with the assurance that our motivation can carry us (and our brains) much farther than we might imagine. We must only be willing to do the work and arm ourselves with the right kind of training tools.

The brain is truly incredible!

SUMMARY

- The brain is capable of growing and changing throughout life.
- Few people naturally function anywhere near their innate upper boundaries of learning capacity.
- Contemporary brain research shows that cognitive skill weaknesses can be identified and overcome, making learning easier.
- Repetition and practice help the brain do a better job of remembering.
- Cognitive skills training can restructure brain pathways to improve reading and other academic learning skills.
- Parents have a tremendous influence over a child's vocabulary and language.
- We can change our brain and our brain's capacity to handle information if we are motivated to grow and learn.



EINSTEIN MOMENT

In the middle of difficulty lies opportunity.

— A. Einstein

TOOLS AND STEPS FOR OVERCOMING LEARNING DIFFICULTIES

The overview of exciting insights from brain research only confirms what I mentioned earlier: no child needs to bear the ongoing frustration of a learning difficulty.

We've established that from birth, the brain is constantly changing—that's neuroplasticity. The brain can be modified in specific ways through the right kind of stimulation. The most deliberate and useful of these stimulations is carefully structured training. This being the case, the learning difficulties your child faces can be substantially overcome if you choose the right cognitive training.

Let's take a look at some of the powerful training techniques used by cognitive skills training professionals—a group of very dedicated and caring individuals with whom I'm honored to be associated.

New Activities Stretch the Brain

When you learn a new task or acquire new knowledge, the memory is assigned to a particular area of the brain. In that space, other brain cells (neurons) are recruited to help process this information. The more you practice or rehearse, the more neurons are involved. The active space in your brain devoted

to this new event actually expands to accommodate the assignment.

Cognitive skills training takes advantage of this fact by packaging its training tasks in a non-academic format. Students are then faced with an enjoyable but unfamiliar task to accomplish. They cannot relegate it to some old familiar experience and dismiss it. The new challenge results in new connections in the brain that begin to be established as soon as the exercises begin.

Repetition Makes a Skill Automatic

With repetition, a cognitive (or mental) skill can eventually become a stored routine. The first step is to bring the skill to a conscious level as your child deliberately thinks about the activity to be trained. As the skill is practiced or rehearsed over days and weeks, the improved skill is then forced naturally to a subconscious level where it will be permanently stored for recall and habitual (or automatic) use. The learner won't have to think about it but will just do it.

There are parallels among the physical skills. For example, in learning how to ride a bike, the more attempts a child makes, the more the brain reinforces the particular skills necessary to stay balanced and in motion. After a short time, a girl or boy doesn't have to stop and think about each part of the procedure to stay upright, balanced, and in motion, or how to stop without falling off. Every time the child rides, the skill is reinforced. Even years later, with no additional riding experience, it's possible for a person to get on a bike and ride because it was so firmly encoded in the brain.

Effective cognitive skills training is delivered multiple days each week for at least a three-month period. This creates enough closely associated repetitions to drive the newly strengthened skill into the subconscious, automatic mode.

Progressive Drills Enhance Cognitive Skills

The brain stays engaged as long as required to handle a task. Drill is the repetition of a single task. Research shows that repetitive drills build stronger pathways and expand the surrounding area of the brain where the task is being recorded. This involves more neurons used for the skill and leads to faster, longer-lasting changes.

Practicing a skill reinforces the mental connections in the brain required to execute it. Repetition communicates the importance you have assigned to the task and consequently, the brain recruits additional cells to record it. The brain's natural capacities adapt quickly and permanently to establish the new activity or skill.

Imagine a basketball star practicing by shooting five hundred free throws every day. With every shot, there is an automatic comparison by the brain to the previous shots. Appropriate adjustments are made in the mind's record of how to shoot free throws. This inevitably results in a better free throw shooter.

Good cognitive skills training takes advantage of the power of repetitive drills. It is formatted in drills that engage the brain's natural capacity to recruit and construct new connections and to process new tasks and information. The weak functions of the brain being retrained actually begin to expand by recruiting other passive areas. Weakness is definitely turned into strength.

The skills learned in the early levels of training can be expanded in the higher levels. The repetition guarantees success and produces rapid, lasting changes. Cognitive skills are not learned like we learn geography. They are developed and strengthened by practice, just like when we would learn how to shoot better free throws.

Fire Together Means Wire Together

Neurons involved in the same repeated thoughts and actions develop stronger connections. Regardless of whether the thoughts and actions involve memorizing a spelling list, a musical score, historical facts, football plays, or the intricacies of a figure skating routine, the network of brain cells incorporated into the memory of the skill or activity will be stronger and last longer.

This reality means that brain training procedures, to be most effective, should be formatted and delivered to impact closely related cognitive skill groups. The individual underlying skills need to be repeatedly worked out by a variety of techniques and drills.

Expanded Brain Function Equals Enhanced Performance

Here's the good news about all this: if the brain is given an opportunity through training to function better and faster, it will. A healthy brain naturally seeks to operate as efficiently as possible. It's designed to learn. If you expand the brain capacity and connections, it will take advantage of the new resources every time it faces a processing task. Since academic performance is dependent on cognitive skill function, increasing the brain's capabilities leads to improved academic performance.

Researchers are still amazed when portions of a patient's brain are damaged or surgically removed following disease or stroke, yet memories of the skills in the remaining part of the brain persist and can even improve!¹ With deliberate training, these individuals are able to retain or relearn skills in other parts of their brains. These cases prove that knowledge can be transferred between parts of the brain, and that the previously weak or underutilized parts of the brain can be strengthened and recruited to new tasks.

Cognitive skills training takes advantage of the brain's adaptability by concentrating on increasing and strengthening brain function and efficiency. By first building a stronger foundation for learning in students, other improvement activities, like tutoring, can be utilized to a much greater effect if such help is still needed to catch up. By first focusing on the foundation of a student's capacity to learn, learning can ultimately (and quickly) be enhanced for a lifetime.

Big, Fast Changes Are Important

Since the brain has the potential to expand—and to do so quickly—why not use that potential? Very few people naturally maximize their innate learning capacity. Good training simply takes advantage of more of the brain's capacity.

The brain recognizes big change as important change. When facing the call for big, fast changes, people may at first be apprehensive. But, when the big, fast changes happen, they are rewarded with pride and increased motivation. You can call it the payoff for taking the risk. The bigger the payoff and the sooner it is realized, the greater a student's willingness to go through the training procedures. Big, fast changes maximize the brain's tendency to adapt to important information. They also maximize the student's motivation and self-esteem.

Good brain training recognizes the capacity for big, fast changes and goes for it. Programs should be designed to last between three and six months, not years on end. To accomplish this goal, the training must be constructed in a series of small incremental steps where improvement and change can be attained and recognized rapidly. Accomplishing many small goals can create big changes quickly. This approach gives valid,

Good brain training recognizes the capacity for big, fast changes and goes for it. Programs should be designed to last between three and six months, not years on end.

tangible, immediate payback as well as the incentive to keep going. Skills grow and self-esteem gets a boost at the same time.

Effective training pushes the intensity envelope and rewards the students with achievable, incremental success. For many struggling students, it is the first taste of learning success they have had in years—or maybe ever. The fun, intense training causes the brain to grow on the inside, while the student is rewarded and continues to be motivated to change on the outside.

The training should also stimulate motivation. Each time a student completes a series of exercises, he should realize just how much his skills are improving. That positive realization through immediate feedback will serve as a reward for past efforts as well as an incentive for future ones. At times, the student may think the training is tough or difficult, but overall growth and improvement will carry him through.

Feedback Helps Strengthen Mental Skills

The brain attaches value and importance to immediate associations. Connections are stronger between information that is closely and repeatedly associated. Immediate feedback provides these types of close proximity associations.

Good brain training needs to be designed to facilitate immediate feedback of two types—positive feedback and corrective feedback. One-on-one training makes this possible. In well-designed cognitive training, the one-on-one training relationship between the trainer and student allows for trusted, immediate, and positive reinforcement. The encouragement provides subtle and effective affirmation for the brain.

This one-on-one design also prevents a student from making false associations. The student should not be allowed to practice a procedure incorrectly. Mistakes can be pointed out at once. When in error, the learner must begin again, not

as punishment, but to re-track the brain's record of how that skill is accomplished and to record it correctly. Furthermore, as training progresses, the student develops the capability of assessing his own performance and self-correcting his errors. It's an essential part of the acquisition and automatic use of any new or improved skill.

Sequencing is Important

The brain physically changes and expands to accommodate new tasks. It will continue to do this as long as the task requires new connections and newly recruited neurons. Sequenced tasks do not let the expansion of the brain coast to a stop. Capacity is increased at a rapid and continual rate.

Effective training is sequenced. Related tasks are grouped to follow one another in logical and progressive steps. Sequencing is part of every good training procedure and brings about confidence and big changes. Effective sequencing includes challenging but achievable small steps of increasing difficulty in the training task. If the task is too hard, it's frustrating. If the task is too easy, it's boring. If the task is sequenced properly it is just right.

Training procedures are to be designed so the student (and the trainer) can experience each procedure at an increasingly more demanding level, and often at a faster rate of speed. The accomplishment is satisfying and serves as incentive for the student to attempt the next more difficult level. Video games are a familiar example in which isolated skill sets are developed through sequencing.

Intensity Builds Cognitive Skills

The brain also associates intensity with importance or value. Intense fear creates indelible memories. Intense grief creates inescapable memories. Physical brain connections are stronger,

and priority storage space is assigned to information or tasks associated with high levels of intensity.

One-on-one cognitive skills training is designed to push a student's intensity threshold. However, intensity need not be

The most effective training is delivered one-on-one. No other student-to-trainer arrangement will provide this essential ingredient and produce such great gains.

unpleasant. Intense activities such as athletic competitions are great learning situations. As the student progresses upward in capability and ability in cognitive training, the intensity increases in the speed and complexity of the procedures. That challenge serves as an incentive to go for a higher level of accomplishment and reinforces brain pathways created to record the newly

acquired task for future use. This is the development of automatic processing (a subconscious habit not requiring conscious effort).

The most effective training is done one-on-one—one trainer and one student committed to one another for the duration of the training. The trainer must be able to immediately and repeatedly assess the student's performance and responses to keep the student on track. The best environment from which to accomplish this is for the trainer to be right across the table, watching every aspect of the student's performance of the procedure and allowing only appropriate or correct responses. The most effective training is delivered one-on-one. No other student-to-trainer arrangement will provide this essential ingredient and produce such great gains.

Distractions Aid in Learning Skills Development

Distractions tax the brain's capacity to sort and evaluate the relative importance of incoming information, involving thousands of value judgments and assignments each day. The brain's ability to correctly handle distracting information

and interruptions is the foundation for focus and good attention skills.

To develop the power of filtering out unwanted or unneeded input, well-designed skills training incorporates deliberate distractions as a training tool. As procedures advance, distractions are a carefully added element. A student's ability to keep attention focused on a task, without surrounding activities or distractions becoming a limitation on progress, is important for working efficiently and productively. This skill is important in every one of life's pursuits—in the classroom, at work, in recreation, and so on.

Cognitive skills training should include activities that involve the trainer's attempts to take the student's attention away from the assigned task. In this model the trainer intentionally pesters the student. The subconscious lesson for the student is simply, "I'm not going to allow this to take my mind off of the task I've been assigned." The skill to successfully focus on the assigned task with one part of the mind, while simultaneously being aware that the distraction is still present, is of immense importance in brain training. In the course of a lifetime of learning, every overcome distraction represents a learning task that stays focused. The student is set up for many satisfying, competitive victories...and the trainer has fun at the same time.

Loading is Important in Successful Cognitive Training

The brain responds physically to the need to process multiple bits of incoming information. It is designed perfectly to process, associate, evaluate, and store or discard a large quantity of incoming information. Loading involves structuring multiple simultaneous tasks.

Good skills training should use loading principles in every series of sequenced drills. For instance, a student may be required to count by three on beat to the sound of a metronome

(counting every other beat) and at the same time listen and respond to the trainer's instructions. Drills like these take a good deal of concentration as well as the ability to successfully divide attention between multiple tasks, to calculate, to create association, and to communicate—all at once.

Exercises such as this will literally force the brain to fire up multiple connections and recruit neurons to handle the task. All this activity leads to lasting, dramatic changes in learning capacity. Loading is a powerful tool used to expand a student's capacity to think quickly and accurately while accomplishing complicated tasks.

A student who masters sequenced tasks involved with loading and distraction has dramatically expanded his or her attention skills and capacity to learn. You can see how these procedures become a valuable measure of feedback as a child's progress is tracked. They are the ultimate evidence of big, fast changes. Progress becomes obvious.

The learning problems with which a student typically enters skills training simply do not allow the kind of simultaneous tasking that good cognitive training programs develop. In almost every case, however, a learner moves through such drills successfully. This is the point in the training when confidence and self-esteem soar.

Effective Cognitive Training is Non-Academic

At the cognitive level, the brain doesn't distinguish between academic and non-academic tasks, but academic learning relies on and is limited by cognitive function. Academic work means the learning of content-dependent subjects like math, social studies, and science. Such traditional schoolwork requires a mix of sensory and cognitive skills coupled with memorization, logic, and reasoning. A student becomes frustrated, not challenged, when asked to engage underlying cognitive skills he simply doesn't have.

Brain training is non-academic for two reasons:

First, academic-style programs might turn the student off to the whole process since he has usually experienced a good deal of frustration and failure with academic work. Designing cognitive training procedures that appear like schoolwork would be a formula for failure.

Second, the non-academic nature of the procedures also means the brain training is more game-like that are fun to play. The likelihood of the student's involvement and success increases dramatically.

A side benefit of the non-academic training style is obvious for the parents who may have spent frustrating hours at the kitchen table with their child unsuccessfully attempting to complete schoolwork. Cognitive training homework, if chosen to do, will be fun for parents too, especially when added to the experience of observing and participating in their child's growth and development.

Effective skills training needs to be built around non-academic procedures. It's fun and effective. It also avoids the trap of training to a particular subject, grade level, or test. Non-academic cognitive training easily transfers its strength and speed gains to any and all academic subjects the student will face.

Willpower Affects Brain Training

Changing a person's way of thinking can also alter the structure of the brain. Research by Jeffrey Schwartz at the UCLA School of Medicine found that a person who forcibly changes his behavior could require neurons to be used for more positive functions.² This illustrates the importance of choice and self-discipline in overcoming problems with learning.

A student who is not motivated to change, who is satisfied with the status quo no matter how miserable it may be, will not

reap the full benefits cognitive training has to offer.

This is another reason that cognitive skills training procedures need to be fun and rewarding. Not every student comes into a cognitive skills training program with a high level of enthusiasm, but the game-like nature of the procedures and the quick and rewarding successes give every student the best chance to enjoy the training. The entire process is designed to help a student build up grit and the will to succeed.

Try some procedures where you and your child will feel the brain changing, growing, and improving cognitive skills. Here are different activities you can do in your own home with a few household items.

How You Can Build Processing Speed

Equipment needed: Playing cards and a watch or stopwatch

Have a student sit at a table with a set of playing cards and using a watch or stopwatch, time him or her as they work sequentially through the four levels below. Have the student try to beat his or her own best time for each level a few times before moving on to the next. If a student finishes the first level in 60 seconds, create a new goal of 50 seconds. As they get quicker, have them work on higher levels that add more complexity.

- Sort the cards into two piles by color (black and red).
- Sort the cards into three piles; red Ace-10, black Ace-10, and face cards.
- Sort the cards into four piles by suits; hearts, diamonds, spades, and clubs.
- Sort the cards into four piles while counting by 2s or 3s.

For more levels and similar activities that build processing speed, go to UnlockTheEinsteinInside.com.

How To Build Working Memory

Equipment needed: A set of cards made up of pairs of objects (e.g., Memory™ by Hasbro, Inc.)

Memory match card games are great ways to strengthen visual memory and memory strategy.

When working with younger children (3-5 years old) start with just 6 matches (12 cards) so they don't feel overwhelmed. Work your way into a larger matching game. Lay out the cards in a grid (use 3 x 4). You can also help the student develop spatial memory by starting with the corners and sides, deliberately creating a strategy to remember card placement.

One strategy you can use with memory cards is to assign the cards in the grid to a mental grid of the room in which you are working. Areas that you might use are the four corners of the room, fireplace, stairs, couch, TV, lamp, doorway, etc.

If the student flips the top corner card and it's a monkey, they can visualize a monkey sitting in the corner of the room. The next card that they flip is a parrot, in the top row next to the monkey card. The student visualizes the parrot on the lamp that is next to the corner. If the student flips a middle card, he or she takes that object and visualizes it in the middle of the room according to the same place as their card grid.

For additional memory procedures go to UnlockTheEinsteinInside.com/procedures.

Building Auditory Processing

Equipment needed: Wooden letter blocks or Scrabble™ tiles

Three major auditory processing skills—blending, segmenting, and sound manipulation—can determine a child’s reading success. Forget letter names and phonics rules and focus on the *sounds* that make up each word.

For example, the word “eight” has two sounds /æ/ and /t/, but five letters. The word “school” has four sounds, /s/ /k/ /oo/ /l/. The English language actually has 43 sounds, but you might want to focus on the following to start:

| | |
|--------------------------|---------------|
| /b/ as in cub | /t/ as in sit |
| /p/ as in cup | /a/ as in add |
| /k/ as in park or picnic | /e/ as in Ed |
| /m/ as in ham | /i/ as in it |
| /n/ as in run | /o/ as in on |
| /d/ as in cod | /u/ as in up |

How To Build Blending Skills

Blending Skills put sounds together to form words.

All words need a vowel. Separate the vowel and consonant blocks and arrange into two piles and have the student pick one from each pile. Say the sounds separately and then put them together to form a word.

It doesn’t matter if it’s a real or nonsense (made-up/gibberish) word. After working with two sounds, work up to three, four, and finally five sounds in a word.

How To Build Segmenting Skills

Segmenting is used to unglue the sounds in a word.

Start with two-sound words and have the student tell you what sounds are in the word. For example, “me” has two sounds /m/ and /ee/. If the student doesn’t get it, you can give them the answer a few times and then ask the student to help. Work your way up to five sounds in a word.

How To Build Sound Manipulation Skills

Have the student drop a sound out of a word, for example: “Say *cat* without the /c/...‘at.’ Say *boy* without the /b/ sound.../oy/. Remember you are using sounds only, not letter names. If you see /c/, say the ‘k’ sound instead of the sound of the letter name, ‘see’.” Use the same technique with letter blocks. Have the student figure out the word once you remove a sound (one of the blocks). Don’t drop vowels.

For a list of words for this procedure, please visit UnlockTheEinsteinInside.com.

How To Build Visual Processing

Equipment needed: Wooden blocks (or Legos®) of different colors

The parent describes the position of blocks. “In my head, I see a red block on top of a yellow block.” The student hears the parent and then tries to create, with real blocks, what the parent visualized and stated. Once the child has mastered two blocks, the parent can add a third. For example, “I see two blue blocks side-by-side. The blue block on the right has a yellow block sitting on top of it.”

Build verbal skills by reversing the order of this activity; have the student create a block building with two or three blocks and then describe the building to you.

How To Build Logic and Reasoning

Equipment needed: Wooden blocks (or Legos®) of different colors

Set up a pattern of five blocks. Have the student show you how they would continue the pattern. For example, you might show one yellow, one blue, one yellow, and one blue. Ask the student to continue the pattern. Below are some sample patterns to get you going.

red blue yellow red blue ____

red red blue blue red ____

red blue yellow green red blue ____

red blue blue yellow yellow yellow green green green ____

red red red red blue blue blue yellow ____

For more patterns and other activities that develop logic and reasoning skills, please visit our website at UnlockTheEinsteinInside.com/procedures.

SUMMARY

- The right cognitive training will bring positive improvement to any child with a learning difficulty.
- The brain stretches as new learning occurs.
- Knowledge can be transferred and shared among different parts of the brain.
- The brain responds well to big, fast changes.
- A variety of techniques—sequencing, intensity, distractions, loading—helps improve brain efficiency.



EINSTEIN MOMENT

Once we accept our limits, we go beyond them.

— A. Einstein

YOUR CHILD'S BRIGHT FUTURE

must say it one more time: regardless of your child's learning challenge, there is hope! Seeing the hope and making it reality, however, are up to you.

I have spent my professional life searching for answers to understand what it takes to help children learn faster and easier. I am so excited about the bright future that awaits children because we now know so much more about learning problems. But as parents or those who care about others, we have to take responsibility for implementing solutions.

After reading the previous chapters, you now have some basic knowledge about cognitive skills. Unfortunately, just having new knowledge will not end your child's learning struggle. Now you need to apply what you've learned so your child will achieve success. What can you do?

To review briefly, there are some actions that usually do not work if the underlying problems are weak cognitive skills. For example, you might try an academic program such as tutoring, but if that does not bring the results you want, you should seek another method or try another program.

This cyclic process is what educational experts have experimented with for decades. The problem is that it can

take years to see if any approach results in learning progress for a child. While enduring one failure after another, you can imagine what happens to the student and her thoughts about school, teachers, and herself.

I believe there's a better way!

Where Can You Find Help?

Who should you turn to for assistance if your son or daughter has weak learning skills?

Almost all parents will start their search for solutions at their child's school. It may come as a surprise, but most teachers and school administrators receive very limited training in spotting and strengthening underlying learning skill weaknesses. Teachers and others at school are sympathetic and want to help, but learning problems confound them almost as much as they do you.

The school may administer tests, but the results will almost always be interpreted in a way that aligns your child with the existing educational model. Your child may receive a learning disability diagnosis and be given tutoring or assigned to special classes. You may hear, "Yes, she has a problem, but she doesn't qualify for special help," or perhaps, "You need to see your doctor about an attention problem."

I repeat—the intentions of educators are good, but because of training, experience, budget limitations, and other factors, they often see problems through the filter of the existing education system.

You must see your child's dilemma from a fresh perspective. No one has the level of interest you do! It's ultimately the parents' responsibility to take charge of their child's educational path.

Your child can learn—you must believe this!

You should also accept the truth that no one else will

shoulder the ultimate responsibility to make sure he or she has the tools needed to achieve learning success.

You may ask, “Why should I have to take charge? I pay plenty of taxes. Isn’t it the school’s job to see that my child succeeds in school? I’m no expert on learning. Why should I have to take this responsibility? Give me a break!”

In a perfect world, you’re right—someone else, like a specialist or an educational institution, would step up and give your child the specific help needed. Practically, however, if you don’t take personal responsibility for this issue, your child could face a long, steep road of frustration and even academic and career failure.

The truth often hurts, but an awareness of this reality gives each of us a chance to respond and change our child’s life while there is time.

A Rationale for Taking Charge

There are many compelling reasons why you should take charge of your child’s cognitive development. Here are two primary reasons:

First, it makes sense to depend on public or private schools to provide qualified and concerned teachers, a safe environment, and a balanced curriculum. Education systems work hard to ensure that the children they serve have these three things.

This environment, as important as it is, does not guarantee that your child will have a successful learning experience. Educators are well intended, but schools simply are not designed to build a child’s cognitive skills base.

In other words, if your child is lacking important underlying skills, the reality is that without your intervention, learning struggles are likely to persist for life. Morally and practically then, as a parent, you cannot neglect to take personal responsibility for your child’s education.

Yes, you can legally delegate the responsibility for your child’s education to a public or private school, but do you dare do this?

Second, the price you and your family will pay for neglecting to take charge of your child’s cognitive learning foundation could be very steep. The emotional, psychological, academic, and future career or occupational costs can be staggering if you wait for someone else to do the job (*see figure 6*).

COGNITIVE SKILLS RANKING AND ITS IMPACT ON COLLEGE SUCCESS AND CAREER EARNINGS

| Ranking | College Grads | Avg. Salary (age 30) |
|---------|---------------|-----------------------|
| Top 5% | 82% | \$106,112 |
| 75-95% | 59% | \$76,672 |
| 25-74% | 19% | \$57,088 |
| Lowest | 3% | \$27,700- \$11,100 |

*The Bell Curve: Intelligence and Class Structure in American Life.*¹ (Salary estimates were adjusted to 2018 dollars.) This graph is not based on LearningRx research and LearningRx clients may not have the same results.

figure 6

If your child’s learning skills are inadequate, you simply cannot afford to wait for someone else to intervene. Time will work against your child’s recovery and progress—lifelong damage could result.

The Logical Place to Begin: Your Child

You will be pleasantly surprised. It may not take nearly as much time and energy as you might think to make sure your

student has the learning skills needed to succeed. Yes, it will require an investment of time, energy, and money, but I want to encourage you. Help is available!

As your knowledge grows regarding what is required to become a strong learner and reader, you will discover that the investment is small compared to the costs of a child's frustration, lost opportunity, and lowered life expectations.

Make the investment to have your child's underlying skills evaluated and then strengthened to sharpen his or her competitive edge. Whether her cognitive skills are weak or strong, they can be dramatically improved—and the change will delight you and your child.

What have you got to lose? Give this approach a try. Take action now!

The First Action Step: Testing

I strongly recommend that you get a good quality learning skills evaluation for your child as your first step. Please, have your child's underlying cognitive skills tested. I truly wish that all children, upon entry into their first year of school and then every three years thereafter, would be screened for cognitive and processing skills problems. If your child's testing reveals some problems, you should place him or her in an intense, one-on-one cognitive skills training program right away.

The Second Action Step: Find a Cognitive Skills Training Program

Amazingly, current clinical research reveals that strong, basic cognitive skills can be properly trained in as little as one semester! Imagine...an investment of just one semester's training can launch your child into a lifetime of faster, easier, more reliable learning.

Regardless of which training system you choose, make sure the instruction is intense, targeted, and one-on-one with your child. Participate fully in the training. Follow it closely. Note the results and the changes as you work with your child at home. Is it working? If not, consider another option.

Above all, enjoy watching your child blossom as he or she starts to relish learning and reading and is no longer falling behind in school.

How To Choose a Program or Training

To help you make sure you find the right learning assistance for your child, there are seven questions you should ask when evaluating any training program. The better programs will have “yes” answers to most, if not all, of these important questions.

1. Does the program impact the cause?

The solution must address the reasons for the learning problem, not just the symptoms.

2. Does the program produce big changes?

The payback must be big enough for both you and your child to recognize easily. Otherwise, it will be hard for both of you to stay motivated throughout the training process.

3. Does the program produce quick changes?

Kids (and parents) need immediate rewards or enthusiasm will wane. Desiring immediate payoffs isn't just impatience, but is a powerful tool for overcoming the habitual failure and low motivation of the past.

4. Does the program produce lasting changes?

The stakes are high—you're investing in your child's future success and happiness. Learning improvements that will last a lifetime are the most valuable.

5. Is the program cost-effective?

We know that time, money, and energy are limited and need to be invested wisely. An inexpensive program that doesn't produce results is a waste. Another program may cost more but will result in lasting changes. Which is the best investment? When a child's lifetime of success or failure is the issue, the expense of a successful program brings value.

6. Does the program have published research?

Only proven methods are worthy of use in helping overcome a child's learning struggle. Each idea, program, or method you consider should have a documented history of success and positive results.

7. Do benefits of the program transfer to other areas of life?

Cognitive skills training should affect many areas of a child's life—not just his or her academic work. Your child may be treated in only one area, but you should see positive changes in other activities and areas of his or her learning.

I strongly urge you to ask the above seven questions when considering any program to address your child's learning difficulties. Without satisfactory answers to most or all of the questions, an inadequate program may give your child (and you) false hope and only sustain rather than eliminate the learning crisis—to say nothing of wasting your precious resources. (In appendix A, the answers for these seven questions for LearningRx programs are provided.)

The Third Action Step: Stay Positive Toward Teachers and the Educational System

When you see dramatic learning progress in your child,

resist getting negative toward or harshly judging the teachers and schools that seemed to have failed your child. Remember, no one set out deliberately to label or hurt your son or daughter. Teachers and others at school are dedicated professionals doing their absolute best—often under stressful circumstances. They’ll be pleased, too, as your child becomes a better student. Enlist teachers as allies for your child’s educational progress. After the cognitive skills training, your child will be equipped to maximize his public, private, or homeschool education.

Warning: Don’t Delay—Now’s the Time to Act!

I implore you not to wait to take charge and act on behalf of your child. Don’t let him or her become part of these statistics:

- Nearly four out of ten fourth graders in our country read below the basic level² and three out of those four will never improve without effective intervention.
- High school students identified as having learning disabilities drop out of school three times more prior to graduation, 18.1 percent compared to 6.1 percent for the average dropout rate of all students.³

Imagine the consequences for these students and, ultimately, for the nation. These are the same bright children, so full of excitement and confidence, who sang the alphabet song before kindergarten. Now however, they will almost certainly not fulfill their potential without the appropriate help.

Why does this happen to our most precious resource? The simple answer revolves around the essential fundamentals of learning. Some children’s basic reading and learning competencies weren’t strengthened early in their education.

What sort of frustration will your child face while he or she is in school? Worse yet, might he or she leave school without a diploma? These are serious matters. No child should be denied the joy of learning because of some correctable but undiscovered cognitive weakness.

The most important thing is to intervene early enough to make a difference in your child's life. Act now while the damage can be kept to a minimum. Even if your son or daughter has struggled for years in school, it's not too late to reverse the damage that was done.

I hate to say this, but even when made aware of the value of early intervention, four out of ten parents wait at least twelve months before they get help for a struggling child. Sadly, some never seek the needed professional help.

Ask yourself: "Can my child afford to have me be like the four of ten parents who wait a year or more to try and find out why their child is having such a struggle keeping up with the rest of the class?"

Take charge today. You and your child will never regret it! Remember this: no matter how much money schools throw at special education, new textbooks, enthusiastic teachers, and interactive classrooms, it does not negate the fact that kids have underlying learning issues that are not being solved. Until parents take the proactive steps to remediate and eliminate those problems, children will suffer day after day, year after year. Help your kids learn better, faster, and easier with powerful, intense, effective training that will alter their academic, social, and home lives forever. You will have a new child—one with increased self-esteem, confidence, and more ability than you ever dreamed possible.

SUMMARY

- There's hope for every child to become a good reader and effective learner.
- Parents must take responsibility for their child's success in overcoming learning challenges.
- A cognitive skills training program needs to be carefully selected.
- The time to act on behalf of your child is now.



EINSTEIN MOMENT

Life is like riding a bicycle. To keep your balance you must keep moving. — A. Einstein

BRAIN TRAINING FOR BRAIN INJURY

For many years, our focus at LearningRx was to help kids with learning problems improve memory, attention, and thinking skills. We had never explored what our one-on-one brain training procedures could do for individuals with traumatic brain injuries (TBIs).

In 2007, our Colorado Springs LearningRx Center had the opportunity to work with a soldier who—while on deployment—suffered multiple TBIs from the blasts of roadside bombs, also known as IEDs. This was the first time we had worked with someone with a traumatic brain injury. The soldier, once an avid reader, lost his ability to read, remember, and focus. We didn't know how much our brain training procedures could help him, but we were eager to find out.

The results were astounding; even *we* were surprised. The soldier's improvements were life changing. Over the next two years we began seeing a growing number of clients with TBIs. Many of these clients were soldiers; others had been injured as a result of car accidents, sports, mountain biking, and more. We continued to be amazed as we saw TBI client after client regain many of the brain skills that had been lost due to the injury.

In 2010, we began to track the impact of one-on-one brain training on a larger scale and the Washington State Veterans Department asked us to partner with them in a pilot program for soldiers with TBIs. We provided brain training for eleven Fort Lewis (Tacoma, Washington) soldiers who were struggling significantly as a result of traumatic brain injuries. At the graduation ceremony for those who had participated in the program, we listened as soldier after soldier explained how LearningRx Brain Training had changed his or her life.

We remember one soldier whose exposure to multiple IED explosions resulted in the loss of an eye as well as a TBI. His brain injury impacted his ability to reason, plan, think quickly and multitask. He felt distracted and frustrated. Before brain training, he assumed he would live the rest of his life on disability. After LearningRx Brain Training, his improvements were so dramatic that he decided to go back to college and get a degree in industrial automation. He did! He completed his college degree and received straight A's most semesters. He still stays in touch with his LearningRx brain trainer.

Many soldiers were able to save their military careers and some were promoted to higher positions. The study results and the real-life improvements with soldiers are published in the journal, *Frontiers Psychology* 2017.¹

Professionally, the success we've had with TBI has been very rewarding.

In early 2011, it got very personal as my dad acquired a brain injury following an E. coli infection. It landed him in the hospital for a week. He lost his short-term memory and could only hold information for about a minute. It was heartbreaking. When he was finally discharged, he was far from his normal self. My dad

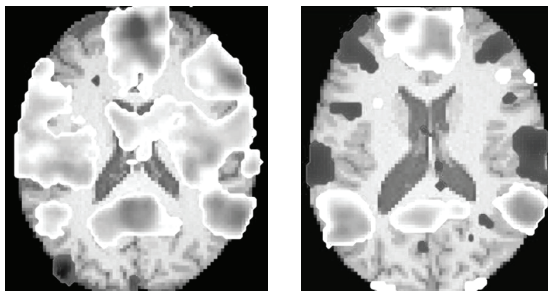
had always been the smartest and sharpest person I knew and suddenly he was struggling with executive functioning skills, processing speed, and long- and short-term memory. A normal conversation with him became very difficult, and his ability to remember anything for even a few minutes was sketchy at best. My dad had been a brilliant researcher and entrepreneur. Now everything he'd been working on before his illness was put on hold.

About that time, we were watching video submissions for the LearningRx Student of the Year and came across a testimonial from a man named John Keller. He had suffered a severe brain injury after a motorcycle accident. He spent 70 days in a coma and about a year later, left the hospital at the cognitive level of a first grader. He started LearningRx training a few years later. The changes in his social and cognitive skills were amazing; he gained back many of the skills lost due to his accident.²

It was then I realized that my dad's brain injury caused by an infection is not all that different from brain injury caused by a bomb or motorcycle accident. Immediately, I felt a surge of hope! My family had already been making plans for Dad to work with a LearningRx brain trainer, and after seeing John's video, we didn't wait another day! We got him started immediately.

Today, because of one-on-one brain training, my dad is nearly back to his old self. The wheels in his head are spinning almost as fast as they did before his illness. I can't imagine the pain of having to live with any other outcome.

By the way, my dad happens to be Dr. Ken Gibson, creator and founder of LearningRx and co-author of this book. (As shared by Tanya Mitchell.)



Pre- and Post-MRI Scans after 72 hours of brain training for a 58-year-old male. Note the brighter areas bordered by white in each image. The post-scan shows a lot of improvement in several areas.

We started clinical case studies of how brain training impacts pre- and post-MRI scans. In our first case study, a 58-year-old male began training eight years after he suffered a traumatic brain injury. After 72 hours of training, his MRI scans changed dramatically.

His IQ score increased 21 points, and shortly after training, he was able to return to his executive-level career. He also reported improved problem solving and focus, new motivation for life, and could even stop taking medication that was used to enhance brain function (commonly used to treat Alzheimer’s disease). During the exit interview his wife thanked us for “getting her husband back.”

Although we do not expect these extraordinary results with every client, we have received hundreds of stories about the impact one-on-one brain training has had on cognitive skills after brain injury. Here are some of the testimonials taken from different articles, news stories, and Learningrx-Reviews.com:

“This program was a bright light in a dark place.” — **Soldier with TBI**

“This was the most helpful thing I have experienced in my life.” — **Soldier with TBI**

“I was partaking in a 100-hour intensive brain training program that completely reset and strengthened my injured neuropathways that were causing a lot of my cognitive difficulty. After multiple concussions, LearningRx was my miracle.” — **Retired NFL Super Bowl Player**

“I came to LearningRx as an adult survivor of a traumatic brain injury, and while I was functioning as an adult once again, I still had some frustrating cognitive problems. They set up a training program based on my initial assessment and got me started with exercises that targeted my weaknesses.

This is hard work to be honest. The exercises and games start out easy, but they quickly find your current level and start pushing onward in difficulty. It can be frustrating, but the trainers are pretty good at sensing your stress tolerance. It’s worth the effort to do this work but it isn’t like straight academic training or tutoring. It’s a regimen that works your brain that winds up paying off in indirect ways.” — **Adult LearningRx Client**

“Highly recommend this Brain Training Program to help improve cognitive skills due to a TBI. LearningRx has been the answer to our prayers after Jeff reached a plateau in Speech Therapy. The cognitive progress he has made since starting the program has given him hope towards reaching his future goals. The Brain Trainers and LearningRx Team are amazing!!!” — **LearningRx Parent**

There is hope and a convergence of evidence that shows even those who are suffering from injury may be helped by brain training.

SUMMARY

- In 2010, we piloted a study with eleven soldiers with brain injury. The study was published in *Frontiers in Psychology*.¹
- After 60 hours of training, a 58-year-old with TBI had dramatic changes on his MRI scans. His IQ score increased 21 points, and he returned to his executive-level job.
- We have worked and witnessed results with hundreds of clients after brain injury.

APPENDICES

A | Rating LearningRx on the Seven Questions

B | Review Your LearningRx Options

C | LearningRx 2016 Results Analysis

D | Thoughts for Teachers

Rating LearningRx & BrainRx on the Seven Questions

How does our training rate on the seven questions?

1. Does the program impact the cause?

Yes. The cause is where we start to identify the issues with cognitive testing. The cause is also central to how and what cognitive skills we target to train. Remember, over 80% of all learning problems have one or more deficient cognitive skills as the core of the issue.

2. Does the program produce big changes?

Yes. Our training produces significant change. The research and outcomes that we share in the following pages of Appendix B (*pages 105-129*) speak for itself and show the convergence of evidence that our cognitive training programs have delivered results.

3. Does the program produce quick changes?

For a family who is dealing with learning difficulties, it is important that they can see and feel change in a short amount of time. Not over several years. Our training produces the above significant results in only three to six months.

4. Does the program produce long-lasting changes?

Unlike academic content that can be forgotten, cognitive skills are retained because they are constantly in use each time we think, read, or solve a problem. In a one-year follow-up study we conducted, 98.7% of the skills trained were equal or greater than at the completion of the training. *(See page 29.)*

5. Is the program cost-effective?

Yes. If you take the time to read through or watch our parent stories, you will hear parent after parent mention that our cognitive training and the change they have seen in their loved one has been worth every penny and all of the time and energy spent. Our fees per session are on the low end of any type of one on one training. The value is evidenced by the real-life change in cognitive ability and the new found peace in family life and hope for the future that our families share in reviews. *(See real-life changes abstract on page 128 and testimonials on pages 135-147.)*

6. Does the program get results?

Our programs have been in development and based on over 35 years of research, have been clinically tested in more than one thousand professional offices and clinics serving over one hundred thousand students. In our core training program ThinkRx we average over a 17 point change in IQ and a **3.4 years average age-equivalent gain in cognitive skill performance.**

7. Does the program create transfer benefits?

Our programs have thousands of test and survey documents that show gains in other skills not specifically targeted. These secondary benefits for students include improved self-esteem, faster homework completion, and greater happiness. However, the powerful testimonials of parents and students transformed

by cognitive skills training from our programs better answer this question (*see testimonials starting on page 135*).

FROM THE FOUNDER

LearningRx/BrainRx training will positively alter mental processing, enhance reading skills and proficiency, and boost the student's ability to successfully deal with academic challenges. — Ken Gibson, LearningRx Founder

APPENDIX B

Client Outcomes and Research Results

REPORT DATE
2016 EDITION

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(Cambridge University Press, 2016)

**OVERVIEW, BACKGROUND, AND PROCEDURE DESCRIPTIONS
PROVIDED BY LEARNINGRX, INC.**

Foreward

Executive processing is dependent upon the collective interplay of brain networks underlying fundamental cognitive skills. In ways, one's executive processing is only as strong as one's weakest cognitive skill. Cognitive training offers the most promising method for strengthening underlying cognitive networks, allowing one to increase overall executive processing ability!

However, not all cognitive training programs are alike! LearningRx is distinct in many ways from the variety of digital training programs available today. Foremost, LearningRx programs are delivered by a clinician who gives dynamic feedback throughout every training session. Further, LearningRx programs are based on the Cattell-Horn-Carroll theory of intelligence, a widely-accepted view of cognition and the theoretical foundation of modern day cognitive assessment. LearningRx is comprehensive; targeting and training seven key cognitive skills and multiple sub-skills. It is also highly intensive, including an average of 60 to 120 hours of training over several months.

We are beginning to use MRI to visualize the underlying changes in brain structure and function after LearningRx training. In one research study, we looked at underlying changes related to gains in auditory processing and found correlated changes in functional connectivity! The dynamic feedback, thoroughness, and intensity of LearningRx cognitive training are keys to producing lasting modifications of cognitive skill networks and the desired functional cognitive gains. It is certainly an exciting time to be in the field of cognitive training research.

Sincerely,

Christina Ledbetter, PhD

Neuroscientist and Research Fellow, LSU Health Sciences Center

LearningRx Client Outcomes: 2010-2015

Executive Summary

Introduction

This report presents the results of a national assessment of the training impacts on cognitive skills and on reading and math achievement for nearly 18,000 clients of LearningRx Brain Training Centers between 2010 and 2015.

Background

LearningRx is a supplemental educational services provider of brain training and cognitive-focused reading and math interventions for students. The services are based on a cognitive training approach to reducing deficits in cognition, reading, and math skills. The services are currently provided at 80 LearningRx Centers across the United States. Each center is an independently owned franchise that implements the LearningRx proprietary programs, including ThinkRx, ReadRx, MathRx, ComprehendRx, and LiftOff.

Clients in the ThinkRx, ReadRx, MathRx, and ComprehendRx programs complete a battery of tests from the Woodcock-Johnson III—Tests of Cognitive Abilities and Tests of Achievement before and after training.

Characteristics of Clients Served Between 2010 and 2015

| Training Program | # Clients | % of Clients | Average Age | # Training Hours |
|------------------|-----------|--------------|-------------|------------------|
| ThinkRx | 7,138 | 40 | 13.7 | 60–90 |
| ReadRx | 6,460 | 36 | 11.4 | 120 |
| MathRx | 1,368 | 8 | 13.2 | 120 |
| LiftOff | 1,245 | 7 | 6.2 | 60 |
| ComprehendRx | 358 | 2 | 13.1 | 40 |

Summary of Findings

To assess the outcomes for clients between 2010 and 2015, pre-intervention test scores were compared to post-intervention test scores using paired samples t tests. Training gains were examined in three ways: a pooled analysis of test data across all clientele, analysis of test data based on self-reported diagnosis, and analysis of test data based on training program. The analyses revealed positive trends and significant training gains for all LearningRx programs and all diagnostic categories.

Gains by Program When the Woodcock-Johnson III standard score results from clients in each program are compared in a table, we can see the mean gain for each cognitive skill by program and as a whole, and also the average gain for all cognitive skills for each program and as a whole.

Table of Cognitive Skill Standard Score Gains by Program

| Skill | MathRx | ThinkRx | ReadRx | ComprehendRx | Skill Mean |
|---------------------|-------------|-------------|-------------|--------------|-------------|
| IQ | 13 | 17 | 13 | 15 | 14.9 |
| Long-Term Memory | 15 | 15 | 14 | 14 | 14.3 |
| Processing Speed | 13 | 12 | 12 | 11 | 11.6 |
| Logic & Reasoning | 12 | 11 | 11 | 10 | 10.8 |
| Auditory Processing | 9 | 10 | 11 | 10 | 10.4 |
| Working Memory | 11 | 10 | 10 | 9 | 9.6 |
| Broad Attention | 10 | 8 | 8 | 8 | 8.3 |
| Visual Processing | 9 | 8 | 8 | 8 | 8.0 |
| Program Mean | 11.5 | 11.4 | 10.8 | 10.7 | 11.1 |

- Overall, LearningRx clients made the greatest gains in IQ and long-term memory, followed by processing speed, logic & reasoning, and auditory processing.
- Consistent with the program's focus on reading skills, ReadRx clients made greater gains in auditory processing than clients in other programs.
- As a group, ThinkRx clients averaged a 17-point gain in IQ score and an 11.4 standard point gain on tests of cognitive skills, including long-term memory, broad attention, logic & reasoning, auditory processing, working memory, visual processing, and processing speed.
- As a group, ReadRx clients averaged a 13-point gain in IQ score, a 10.8 standard point gain on tests of cognitive skills, and made statistically significant gains on tests of Reading Fluency, Word Attack, Spelling Sounds, Sound Awareness, and Passage Comprehension. The mean gain across reading achievement tests was 3.5 years.
- As a group, MathRx clients averaged a 13-point gain in IQ score, an 11.5 standard point gain on tests of cognitive skills, and made statistically significant gains on tests of Math Fluency, Applied Problems, Decision Speed, and Quantitative Concepts. The mean gain across math achievement tests was 3.4 years.

- As a group, ComprehendRx clients averaged a 15-point gain in IQ score, an 10.7 standard point gain on tests of cognitive skills, and made statistically significant gains on tests of Reading Fluency, Word Attack, Listening Comprehension, Sound Awareness, and Passage Comprehension. The mean gain across reading achievement tests was 3.8 years.

Gains by Diagnosis When the Woodcock-Johnson III standard score results from clients with different diagnoses are compared in a table, we can see the mean gain for each cognitive skill by diagnosis and as a whole, and also the average gain in all cognitive skills for each diagnosis and as a whole.

Table of Standard Score Cognitive Skill Gains by Diagnosis

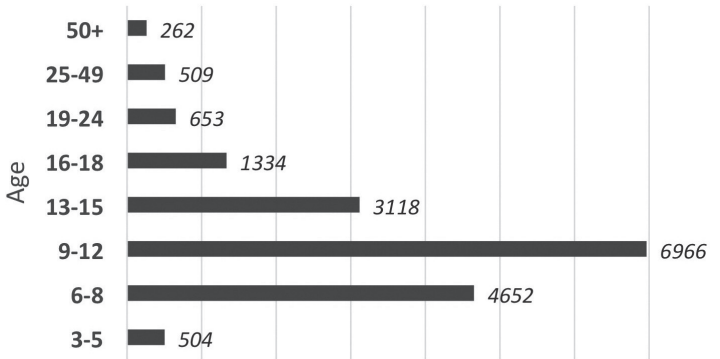
| Skill | ADHD | Senior Adults | Dyslexia | Autism | TBI | LD | Speech & Language | Skill Mean |
|-----------------------|-------------|---------------|-------------|-------------|-------------|-------------|-------------------|-------------|
| Auditory Processing | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 14.4 |
| Long-Term Memory | 14 | 15 | 14 | 13 | 14 | 14 | 13 | 13.9 |
| IQ | 14 | 19 | 13 | 9 | 9 | 9 | 9 | 11.7 |
| Logic & Reasoning | 11 | 10 | 12 | 11 | 11 | 11 | 11 | 11.0 |
| Broad Attention | 12 | 7 | 11 | 11 | 11 | 11 | 10 | 10.4 |
| Working Memory | 10 | 10 | 9 | 11 | 10 | 10 | 10 | 10.0 |
| Processing Speed | 9 | 6 | 8 | 10 | 9 | 9 | 9 | 8.6 |
| Visual Processing | 11 | 9 | 8 | 8 | 8 | 8 | 8 | 8.6 |
| Diagnosis Mean | 11.9 | 11.3 | 11.1 | 10.9 | 10.9 | 10.9 | 10.6 | 11.1 |

- All cognitive skills gains were statistically significant regardless of diagnosis.
- Clients who came to LearningRx with a prior diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) achieved the greatest gains overall, averaging 11.9 standard score points across cognitive skills.
- Clients over the age of 50 who came to LearningRx made the greatest gains in IQ score, averaging a 19-point increase. Clients with ADHD

averaged a 14-point increase in IQ score, and clients with dyslexia averaged a 13-point increase. The average increase in IQ score for all diagnostic categories combined was 11.7 points.

- As a group, clients who came to LearningRx with a diagnosis made the greatest gains in auditory processing and long-term memory, followed by IQ score and logic & reasoning.

Number of Clients in 2010-2015 by Age



Profile of LearningRx Clients

| Percentage with a Prior Diagnosis | % |
|---|-----|
| Attention Deficit Hyperactivity Disorder (ADHD) | 30 |
| Dyslexia | 12 |
| Learning Disability | 11 |
| Speech/Language Delay | 10 |
| Autism Spectrum Disorder | 5 |
| Traumatic Brain Injury | 2 |
| Age-Related Memory Loss | < 1 |
| Gender | % |
| Female | 40 |
| Male | 60 |

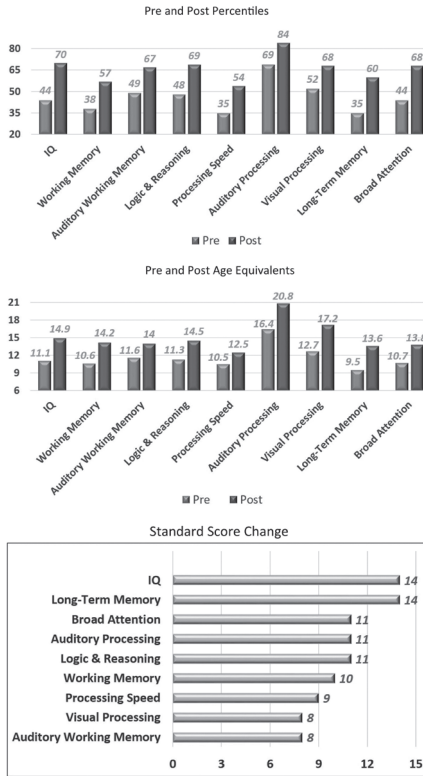
Client Outcomes by Program

Cognitive Assessment Results: 2010–2015

Program All programs
Number of Clients 17,998
Mean Age 12.3

LearningRx clients are given pre- and post-assessments using the Woodcock-Johnson III—Tests of Cognitive Abilities. The changes in standard scores were statistically significant for all measures ($p < .001$). Overall, the largest gains were seen in IQ and long-term memory, followed by broad attention, auditory processing, and logic & reasoning. The average pre-test IQ score was 97 and the average post-test IQ score was 111. In addition, post-training percentiles are well within the range of normal functioning, and **the average age-equivalent gain in cognitive skill performance was 3.4 years.**

Results



All changes are statistically significant ($p < .001$)

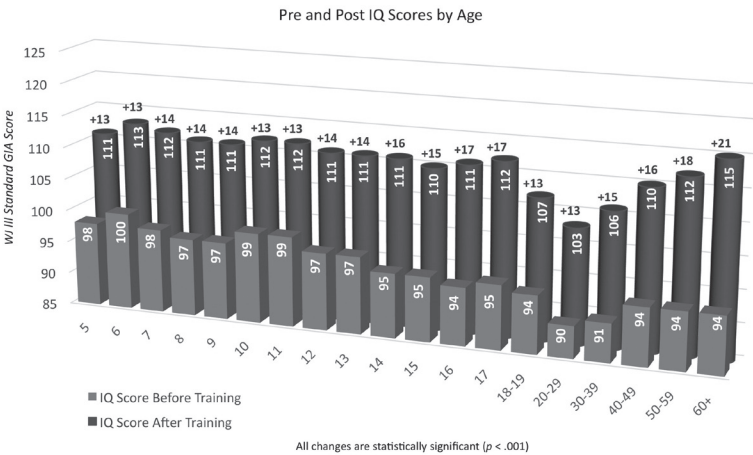
IQ Score Results: 2010-2015

Program All programs

Number of Clients 17,998

Mean Age 12.3

LearningRx clients are given pre- and post-assessments using the Woodcock-Johnson III—Tests of Cognitive Abilities. A majority of clients take the seven subtests required to calculate an IQ score, or General Intellectual Ability score. The changes in IQ scores were statistically significant for all measures ($p < .001$). The average pre-test IQ score was 97 and the average post-test IQ score was 111. **Mean gains ranged from 13 points to 21 points across age groups.**



ThinkRx Cognitive Results: 2010-2015

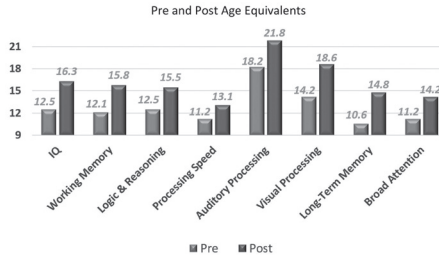
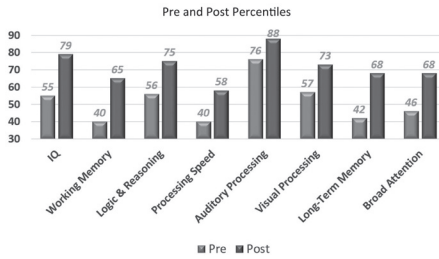
Program ThinkRx

Number of Clients 7,138

Mean Age 13.7

Results

The changes in standard scores on the Woodcock-Johnson III—Tests of Cognitive Abilities were statistically significant for all skills ($p < .001$) assessed. Overall, the largest gains were seen in IQ and long-term memory, followed by broad attention, auditory processing, and logic & reasoning. The average pre-test IQ score was 100 and the average post-test IQ score was 117. In addition, post-training percentiles are well within the range of normal functioning, and **the average age-equivalent gain in cognitive skill performance was 3.4 years.**



All changes are statistically significant ($p < .001$)

ReadRx Achievement Results: 2010-2015

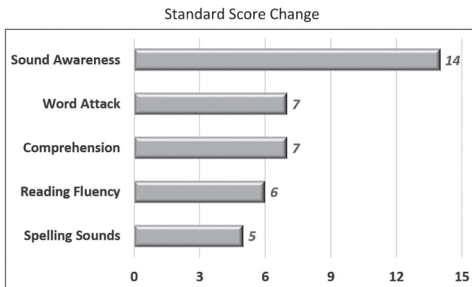
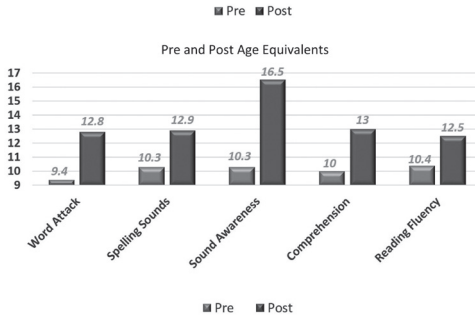
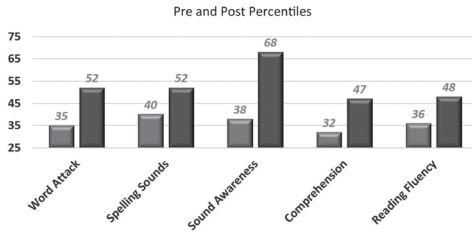
Program ReadRx

Number of Clients 6,460

Mean Age 11.4

Clients who completed the 120-hour ReadRx program achieved statistically significant standard score changes ($p < .001$) on all five reading subtests administered from Woodcock-Johnson III—Tests of Achievement. Overall, the largest gain was seen in sound awareness, the primary skill needed for reading. Post-training percentiles are all within the normal range, and **the overall age-equivalent gain in reading achievement was 3.5 years.**

Results



All changes are statistically significant ($p < .001$)

MathRx Achievement Results: 2010-2015

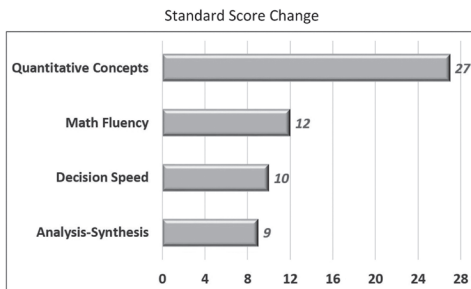
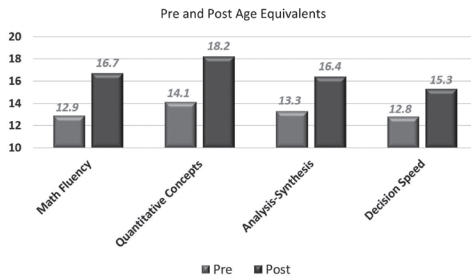
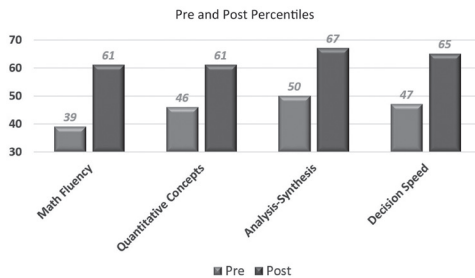
Program MathRx

Number of Clients 1,368

Mean Age 13.2

Results

Clients who completed the 120-hour MathRx program achieved statistically significant standard score changes ($p < .001$) on the assessment of math skills selected from the Woodcock-Johnson III – Tests of Cognitive Abilities and Tests of Achievement. Post-training percentiles are all within the normal range, and **the overall age-equivalent gain in math skills was 3.4 years.**



All changes are statistically significant ($p < .001$)

ComprehendRx Achievement Results: 2010-2015

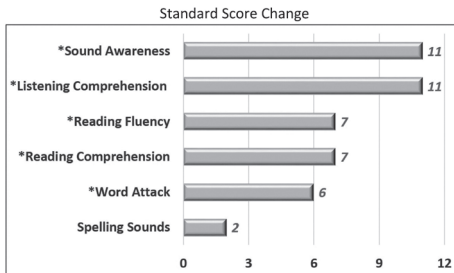
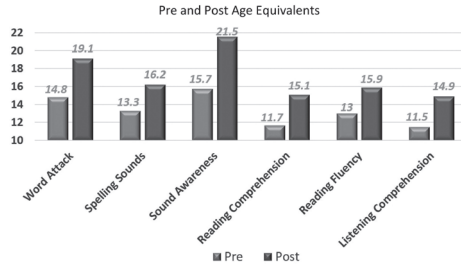
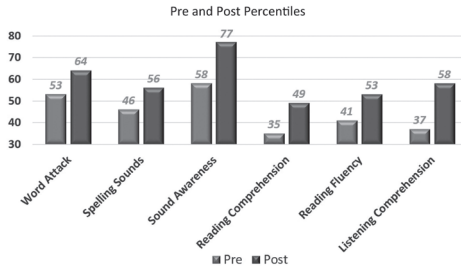
Program ComprehendRx

Number of Clients 358

Mean Age 13.1

Results

Clients who completed the 160-hour ComprehendRx program achieved statistically significant standard score changes ($p < .001$) on five of the six reading subtests administered from Woodcock-Johnson III—Tests of Achievement. Overall, the largest gain was seen in sound awareness, the primary skill needed for reading. Substantial gains were also noted in listening comprehension. Post-training percentiles are all within the normal range, and **the overall age-equivalent gain in reading achievement was 3.8 years.**



*Changes are statistically significant ($p < .001$)

Client Outcomes by Program

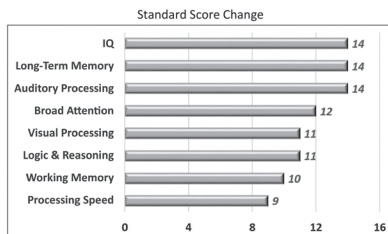
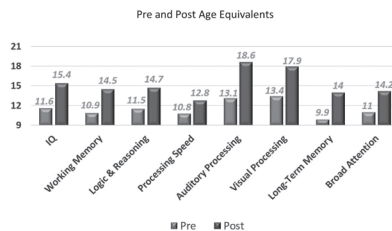
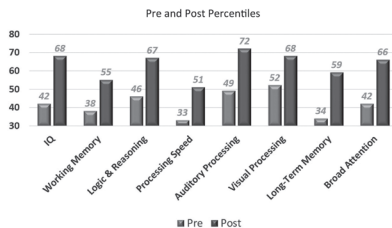
Cognitive Assessment Results by Client-Reported Diagnosis

Attention Deficit Hyperactivity Disorder

Program All
Number of Clients 5,416
Mean Age 12.3

Results

The following charts show the improvements in cognitive skills for clients who came to LearningRx with a diagnosis of ADHD between 2010 and 2015. The changes in standard scores on the Woodcock-Johnson III—Tests of Cognitive Abilities were statistically significant for all skills ($p < .001$) assessed. Overall, the largest gains were seen in IQ, auditory processing, and long-term memory, followed by broad attention and logic & reasoning. The average pre-test IQ score was 96 and the average post-training IQ score was 110. In addition, post-training percentiles are well within the range of normal functioning, and **the average age-equivalent gain in cognitive skill performance was 3.7 years.**



All changes are statistically significant ($p < .001$)

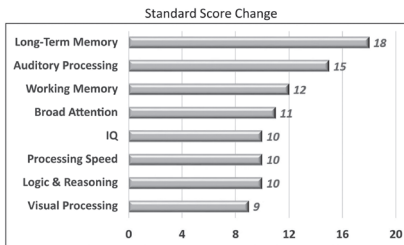
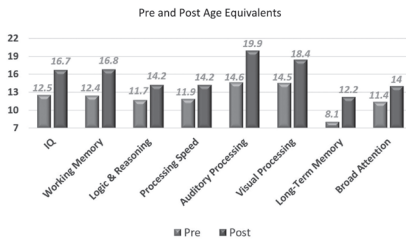
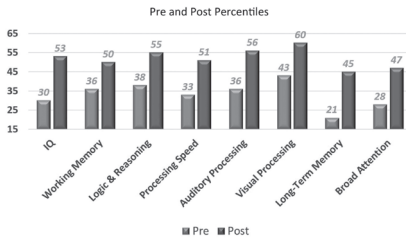
Cognitive Assessment Results by Client-Reported Diagnosis

Traumatic Brain Injury

Program All
Number of Clients 273
Mean Age 25.6

Results

The following charts show the improvements in cognitive skills for clients who came to LearningRx with a diagnosis of traumatic brain injury (TBI) between 2010 and 2015. The changes in standard scores on the Woodcock-Johnson III—Tests of Cognitive Abilities were statistically significant for all skills ($p < .001$) assessed. Overall, the largest gains were seen in auditory processing and long-term memory, followed by working memory and broad attention. The average pre-test IQ score was 92 and the average post-test IQ score was 102. In addition, post-training percentiles are within the range of normal functioning, and **the average age-equivalent gain in cognitive skill performance was 3.7 years.**



All changes are statistically significant ($p < .001$)

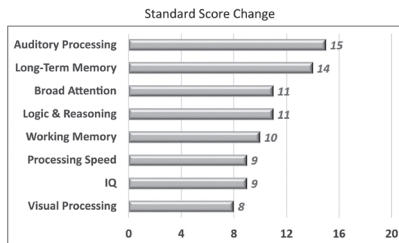
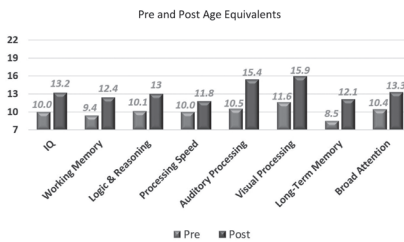
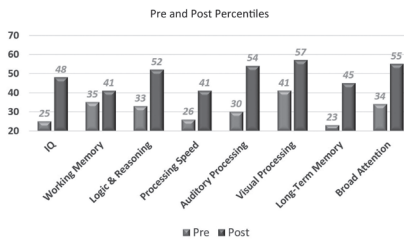
Cognitive Assessment Results by Client-Reported Diagnosis

Learning Disability (LD)

Program All
Number of Clients 2,003
Mean Age 13.1

Results

The following charts show the improvements in cognitive skills for clients who came to LearningRx with a diagnosis of Learning Disability (LD) between 2010 and 2015. The changes in standard scores on the Woodcock-Johnson III—Tests of Cognitive Abilities were statistically significant for all skills ($p < .001$) assessed. Overall, the largest gains were seen in auditory processing and long-term memory, followed by logic & reasoning and broad attention. The average pre-test IQ score was 90 and the average post-test IQ score was 99. In addition, post-training percentiles are within the range of normal functioning, and **the average age-equivalent gain was 3.3 years.**



All changes are statistically significant ($p < .001$)

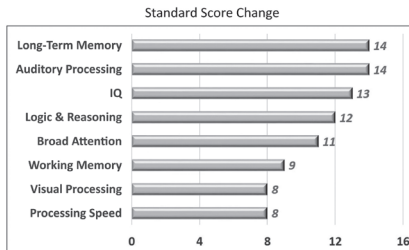
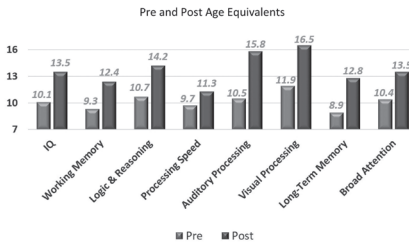
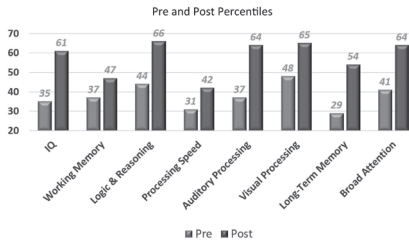
Cognitive Assessment Results by Client-Reported Diagnosis

Dyslexia (Cognitive Results)

Program All
Number of Clients 2,112
Mean Age 11.9

Results

The following charts show the improvements in cognitive skills for clients who came to LearningRx with a diagnosis of dyslexia between 2010 and 2015. The changes in standard scores on the Woodcock-Johnson III—Tests of Cognitive Abilities were statistically significant for all skills ($p < .001$) assessed. Overall, the largest gains were seen in auditory processing and long-term memory, followed by logic & reasoning and broad attention. The average pre-test IQ score was 93 and the average post-test IQ score was 106. In addition, post-training percentiles are within the range of normal functioning, and **the average age-equivalent gain in cognitive skill performance was 3.6 years.**



All changes are statistically significant ($p < .001$)

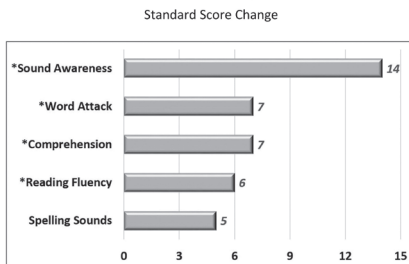
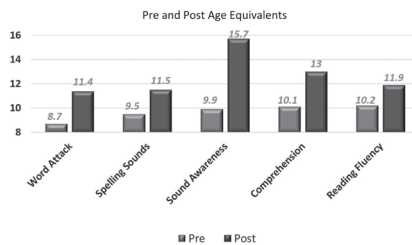
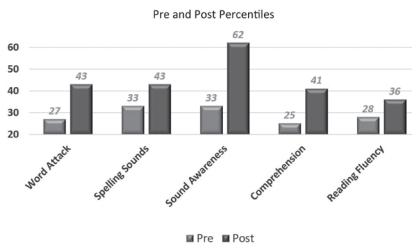
Cognitive Assessment Results by Client-Reported Diagnosis

Dyslexia and Reading Skills (*Reading Results*)

Program ReadRx
Number of Clients 1,512
Mean Age 11.8

Results

The following charts show the improvements in reading skills for clients who came to LearningRx with a diagnosis of dyslexia between 2010 and 2015, and completed the ReadRx program. The changes in standard scores on the Woodcock-Johnson III – Tests of Achievement were statistically significant for four of five skills ($p < .001$) assessed. Overall, the largest gains were seen in sound awareness, word attack, and comprehension followed by reading fluency and spelling. In addition, **the average age-equivalent gain in reading skill performance was three years. In sound awareness—the primary skill needed for reading—the average age-equivalent gain was nearly six years.**



*Changes are statistically significant ($p < .001$)

Cognitive Assessment Results by Client-Reported Diagnosis

Autism Spectrum Disorder

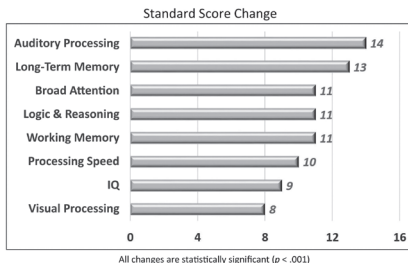
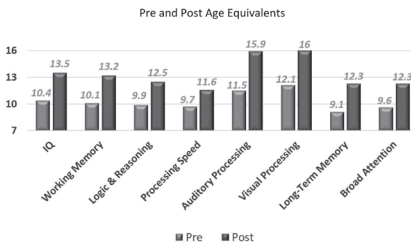
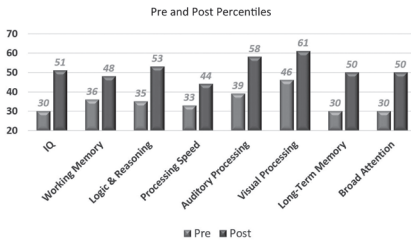
Program All

Number of Clients 857

Mean Age 11.9

The following charts show the improvements in cognitive skills for clients who came to LearningRx with a diagnosis on the autism spectrum between 2010 and 2015. The changes in standard scores on the Woodcock-Johnson III—Tests of Cognitive Abilities were statistically significant for all skills ($p < .001$) assessed. Overall, the largest gains were seen in auditory processing and long-term memory, followed by logic & reasoning, working memory, and broad attention. The average pre-test IQ score was 92 and the average post-test IQ score was 101. In addition, post-training percentiles are within the range of normal functioning, and **the average age-equivalent gain in cognitive skill performance was 3.1 years.**

Results



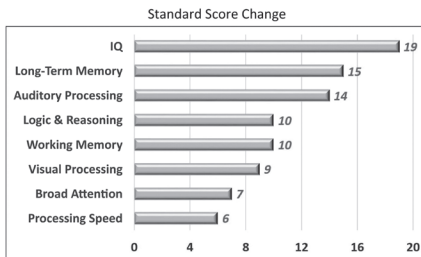
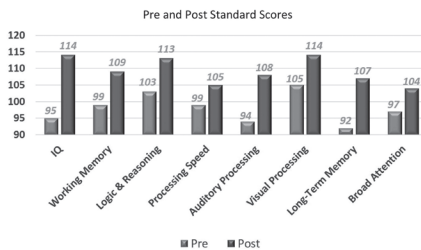
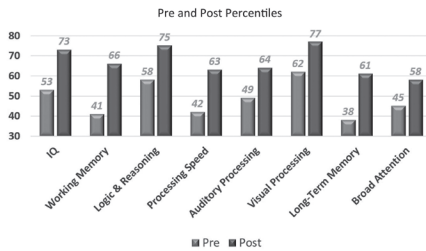
Cognitive Assessment Results by Client-Reported Diagnosis

Senior Adults

Program All
Number of Clients 262
Mean Age 60.1

Results

The following charts show the improvements in cognitive skills for clients over the age of 50 who came to LearningRx between 2010 and 2015. The changes in standard scores on the Woodcock-Johnson III—Tests of Cognitive Abilities were statistically significant for all skills ($p < .001$) assessed. Overall, the largest gains were seen in IQ, auditory processing, and long-term memory, followed by logic & reasoning, working memory, and visual processing. **The average pre-test IQ score was 95 and the average post-test IQ score was 114.** In addition, post-training percentiles are well within the range of normal functioning.



All changes are statistically significant ($p < .001$)

LearningRx Cognitive Training Effects in Children Ages 8–14: A Randomized Controlled Trial

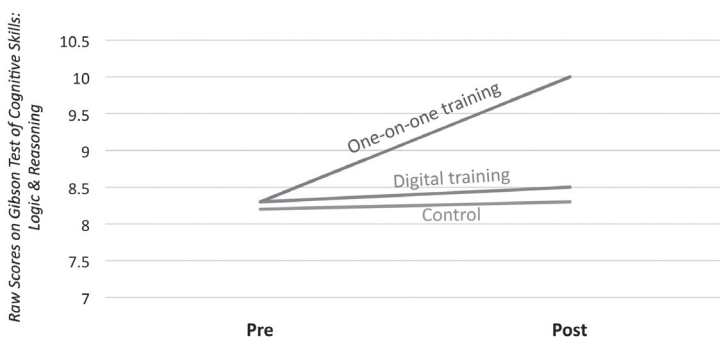
Abstract: In a randomized controlled study with students ages 8–14, we examined the effects of the ThinkRx cognitive training program on IQ, memory, visual and auditory processing, processing speed, and reasoning as measured by the Woodcock-Johnson III–Tests of Cognitive Abilities, and on attention as measured by the NIH Toolbox Cognitive Battery. Participants were randomly assigned to either an experimental group (n= 20) to complete 60 hours of cognitive training, or to a wait-list control group (n= 19). The purpose of the study was to examine changes in general intelligence and individual cognitive skills after completing cognitive training with ThinkRx, a LearningRx program. Results showed statistically significant differences between groups on all outcome measures, except for attention. (R2= .352), and word attack (R2= .359). Completion of the cognitive training program was not a significant predictor of scores on visual processing.

| | Control | Treatment | Causal Effect |
|------------------------------------|---------------------|---------------------|----------------------|
| | Pre-Post Difference | Pre-Post Difference | Treatment-Control |
| Logic & Reasoning | -7 | 21 | 28 |
| IQ | -5 | 21 | 26 |
| Long-Term Memory | 7 | 28 | 21 |
| Working Memory | -8 | 13 | 21 |
| Auditory Processing | -4 | 13 | 17 |
| Associative Memory | 8 | 23 | 15 |
| Visual Processing | 4 | 11 | 7 |
| Processing Speed | 7 | 13 | 6 |
| Attention | 3 | 5 | 2 |
| Average Standard Score Gain | 1 | 17 | 16 |

Carpenter, D., Ledbetter, C., & Moore, A.L. (2016). LearningRx cognitive training effects in children ages 8–14: A randomized controlled trial. *Applied Cognitive Psychology*, 30(5), 815-826. doi: 10.1002/acp.3257. Available at onlinelibrary.wiley.com/doi/10.1002/acp.3257/epdf

The Efficacy of the LearningRx Cognitive Training Program: Modality and Transfer Effects

Abstract: This study tested the efficacy of a one-on-one cognitive training program (ThinkRx) and a digital training program in laboratory and school settings. In a randomized controlled study, 225 high school students were randomly assigned to one of three conditions: ThinkRx, digital training, or study hall (control) in a school setting for a 15-week training period. Univariate ANCOVAs revealed significantly higher scores for the treatment groups compared with controls on working memory, logic & reasoning, and three of four math attitude measures, but not for math performance. However, because the intervention did not include the MathRx program, the results are as expected.

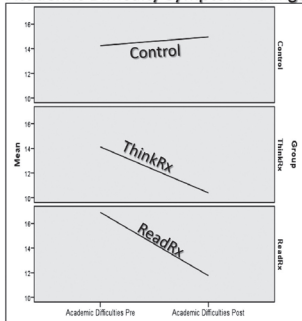


Hill, O.W., Serpell, Z., & Faison, O. (2016). The efficacy of the LearningRx cognitive training program: Modality and transfer effects. *Journal of Experimental Education: Learning, Instruction, and Cognition*, 84(3), 600-620. doi: 10.1080/00220973.2015.1065218. Available at dx.doi.org/10.1080/00220973.2015.1065218

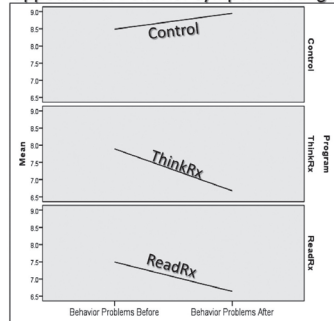
Real-Life Benefits of LearningRx Cognitive Training: A Controlled Study

Abstract: This study investigated whether a one-on-one cognitive training program reduced academic difficulties and oppositional behavior for 226 school-age children. Using a standardized parent rating scale, Learning Skills Rating Scale (LSRS), three groups were surveyed: 77 students who had completed the 60-hour ThinkRx cognitive training program, 69 students who had completed the 120-hour ReadRx cognitive training program, and 80 students who completed initial testing, but chose not to complete a training program. Results indicated there were statistically significant differences between the treatment groups and the control group on all measures of academic difficulties. Both treatment groups saw a reduction in academic difficulty ratings following training while the control group saw an increase in academic difficulty during a comparable time interval. Further, both treatment groups improved on ratings of oppositional behavior while the control group ratings worsened.

Academic Difficulty Symptom Ratings

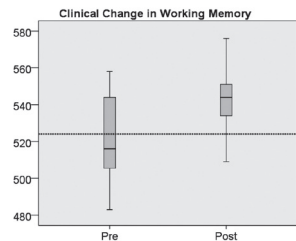
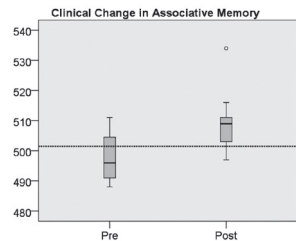
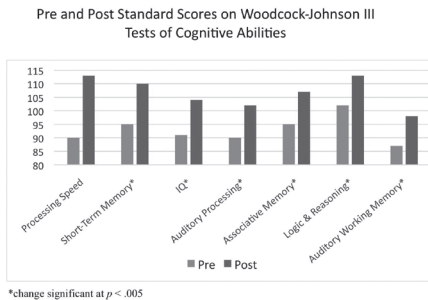


Oppositional Behavior Symptom Ratings



Cognitive Training Pilot Study for Soldiers with Brain Injury

Abstract: In this quasi-experimental, pre-test-post-test feasibility study, 11 soldiers between 3 and 36 months post-traumatic-brain-injury completed half of ThinkRx through one-on-one cognitive training at an occupational therapy clinic, and half through computer-based cognitive training sessions at home. Participants achieved statistically significant gains in short-term memory, associative memory, executive processing, auditory processing, and fluid reasoning with very large effect sizes; and self-reported improvements in attention, memory, and organization. Further, they achieved significant clinical changes, restoring function to normal levels in nearly all cognitive skills. Examples of clinically significant changes in memory are shown in the box plots.



Mixed Methods Study on LearningRx Results for Students with Dyslexia

Abstract: To assess the real-life changes following training, we surveyed parents of former clients who had been previously diagnosed with dyslexia and later completed a LearningRx training program. The survey results from the 109 respondents indicated that a large percentage of clients saw classroom improvements such as faster reading, reading comprehension, and memory for details. Almost 50% reported achieving better grades after training, and more than 50% reported increased confidence in school. Clients also reported more positive relationships with others, more independence in completing homework, and increased participation and performance in sports.

| Social/Recreational Improvements | | School-Related Improvements | |
|---|------------|--|------------|
| Answer Options | Response | Answer Options | Response |
| More positive relationships with family | 48% | Reads faster | 59% |
| More positive relationships with teachers | 47% | Completes homework more independently | 56% |
| More positive relationships with friends | 43% | Is more confident about school | 55% |
| Increased confidence in extracurricular activities | 34% | Remembers details from reading | 53% |
| Increased participation in extracurricular activities | 28% | Understands what is read | 52% |
| Increased confidence about playing sports | 26% | Achieves better grades | 46% |
| Increased participation in sports | 18% | Completes homework faster | 45% |
| Better performance in extracurricular activities | 16% | Has a better memory | 40% |
| Better performance in sports | 15% | Solves math problems more quickly | 39% |
| | | Pays attention longer | 38% |
| | | Is more organized | 34% |
| | | Is eager to read | 33% |
| | | Is more focused | 33% |
| | | Achieves higher standardized test scores | 30% |
| | | Finishes classwork on time | 29% |

Reference: Ledbetter, C., Moore, A.L., & Mitchell, T. (2016). *Mixed Methods Study on LearningRx Results for Students with Dyslexia*. Technical report in preparation.

One-Year Retention Results for LearningRx Clients

Abstract: To assess retention of training gains for LearningRx clients, we analyzed the results for 516 clients who opted to return for a one-year follow-up assessment on the Woodcock-Johnson III—Tests of Cognitive Abilities. The average age of clients who completed the follow-up testing was 10.8. Retention rates ranged from 96% to 99%, with the greatest retention of skills in visual processing, auditory processing, and logic & reasoning.

| Pre, Post, and Follow-Up Standard Scores | | | | |
|--|-----|------|----------------|------------|
| Skill | Pre | Post | One Year Later | Retention |
| IQ | 95 | 111 | 107 | 97% |
| Long-Term Memory | 94 | 107 | 106 | 98% |
| Visual Processing | 102 | 109 | 108 | 99% |
| Auditory Processing | 111 | 122 | 121 | 99% |
| Logic & Reasoning | 100 | 111 | 111 | 99% |
| Processing Speed | 91 | 99 | 94 | 96% |
| Working Memory | 94 | 104 | 101 | 98% |

All scores are rounded to the nearest whole number.

Client Satisfaction Ratings

Abstract: To assess client satisfaction with LearningRx training programs, parents and adult clients complete an exit survey at the end of training. From 2005-2015, over 19,000 of our 21,836 clients rated the training a 9 or a 10. 71% rated LearningRx a 10, and another 24% rated LearningRx an 8 or a 9. And in 2015, the average score across all LearningRx Centers was a 9.6 out of 10!

| Exit Interview Ratings | | | | |
|--|-----|--------|------------|----------------|
| Question | 10 | 9 or 8 | 7 or below | Average Rating |
| On a scale of 1 to 10, how likely would you be to refer a friend or family member to LearningRx? | 71% | 24% | 5% | 9.6 |



EINSTEIN MOMENT

*It is the supreme art of the teacher to awaken joy in
creative expression and knowledge. — A. Einstein*

Thoughts for Teachers

Teachers, thanks for your service to our students and our future. We are a family of educators and we hold you and your dedication to helping students in high esteem. Your job is becoming more challenging and increasingly demanding as the information age goes into overdrive. Students simply must be able to learn and read efficiently if they are to succeed in life in the 21st century. You are indispensable to the process, but you are also completely dependent on each student's core cognitive ability to learn to fulfill your mission.

Cognitive skills testing and training can become powerful tools in your efforts to help struggling students.

LearningRx/BrainRx wants to be your ally. Cognitive testing and training can often remove the barriers your students are experiencing. We have a variety of tools and materials to help you.

CE Course Opportunity: LearningRx has made the online CE self-study course, Cognitive Skills—Understanding Learning Challenges, available for free to K-12 teachers. Teachers can go to LearningRx.k12ceus.com to register for a 5-, 10- or 15-hour version using coupon code: LRX7713AED1F. Each teacher may register for one free self-study course.

We offer special school programs, in-service training, cooperative testing and training partnerships, and private referral programs to get help to individual students who need it.

These services, as well as a group of talented and supportive colleagues with practical expertise in cognitive skills testing and training, are available to you through a local LearningRx/BrainRx center.

Go to **LearningRx.com** or **BrainRx.com** to find a center near you and give them a call. When you call, be sure and ask for free teacher-related information.



EINSTEIN MOMENT

*It's not that I'm so smart, I just stay with problems
longer.* — A. Einstein

Testimonials

These are real testimonials written by actual LearningRx clients. They represent the exact words of clients and may report improvements that LearningRx does not claim or promise. To view video testimonials please visit StudentShoutouts.com or for more testimonials visit LearningRx-Reviews.com.

This is the best time and money I have ever spent. I wish we had found this program five years ago when Ivy's learning problems were first recognized. We wasted a lot of time and money on programs that were only Band-Aids™. They didn't address any of the reasons why she wasn't reading or comprehending. Ivy always knew she was smart—smarter than most of the kids in her class, but frustrated that she couldn't produce the work needed to get passing grades. Her brain has been unlocked. She loved the program. She hated the homework, but she loved to show off to friends and neighbors.

— **PAULA B.**, mother of Ivy, age 11

When we began LearningRx, our daughter not only had problems with her schoolwork, but was also having problems with self-image and confidence. She was acting out of character due to the frustration. She was exhausted at the end of each day because she was working so hard with little results. After only a few sessions, we noticed she had a renewed confidence and was excited to learn and do well. After 10 weeks, not only did we (and her teacher) see a difference, but she saw the difference on her report card. She had increased her grades in all areas. By the end of the sessions and the school year she brought her grades up to an above-average level. She is happy with herself and sees herself on level with her friends and classmates. She enjoys school and is eager to learn. Thanks for your help!

— **JAMES & CHRIS W.**, parents of Kayla, age 9

This program is great. The difference in Joey is night and day. He has even started reading because he wants to. Now that's impressive! When he makes a mistake now, he's always willing to try another way to correct it without guessing. LearningRx has been a true blessing for my son.

— **PARENT OF JOEY**, age 13

I made the A/B honor roll. **PARENT:** It used to be such a struggle to get him ready for school. Now he's the first one ready in the morning. LearningRx has done great things for my son. **TRAINER:** Austin has stopped saying he was stupid or, "It's too hard." He no longer feels like he's unable to learn.

— **AUSTIN**

Parker has made tremendous strides in all areas of learning and I truly believe that it is because of LearningRx. I am amazed at how—in such a short period of time—his desire to learn expanded. I would definitely recommend the program to any parent who has concerns that their child is struggling in school or just seems to have to work too hard in any learning skills. Thank you, LearningRx!

— **PARENT OF PARKER**, son, age 7

Elizabeth had no missing assignments this quarter and her report card had no failing grades. She's off of academic probation, and I see a big difference from last year. She doesn't put off starting assignments, does her homework in study hall, and pays attention to due dates. I don't have to check her work anymore for completeness. Her stress level is down and so is mine. She's on the Academic Challenge team and is developing confidence as she succeeds. She's turning her attention to getting her learner's permit to drive her senior year. Elizabeth is looking forward to playing on the tennis team next fall and is considering which classes she'll take senior year!

— **KAREN D.**, mother of Elizabeth, age 16

My reading level improved from 3.5 to 6. I got a better grade in my science class. **PARENT:** LearningRx has been a godsend. She has been in special education and other programs since third grade. Now she is in eighth grade and it has been determined that she will be in only one modified class.

— **PARENT OF SAVANNAH**

I wasn't a typical LearningRx client; I came as an adult survivor of a traumatic brain injury, and while I was functioning as an adult after my TBI, I still had some frustrating cognitive problems. The staff managed to find a couple trainers who have really helped me over the past year, setting up a program based on my initial assessment, starting me started with exercises that targeted my weaknesses.

Honestly, this was hard work. The exercises and games start out easy, but your trainer quickly finds your current level and then pushes you on to more difficult levels. It can be frustrating, but the trainers are good at sensing your stress tolerance. It's worth the effort but it isn't like straight academic training or tutoring. It's a regimen that works your brain that winds up paying off in indirect ways.

— **PETER**

I am better at reading. Math is not as frustrating. I will never quit, because I'm smart. PARENT: Jacob has better focus and concentration. Homework has become easier.

— **PARENT OF JACOB**

Halie is a nine-year-old girl who joined us in May. Halie's mom brought her to us in the hopes of improving Halie's spelling and writing skills. Halie improved more than that! With our help, Halie went from Fs on spelling tests to As in one summer! Her processing speed went from the slowest in the class to the 2nd fastest—100 math problems in five minutes with only two errors! Her ability to write papers has vastly improved and her teacher tells her that she is doing among the best work in the class. Her stories are funny and clear and easy to read. She sits down at her brother's soccer games and writes

first drafts of multiple paragraphs in less than 45 minutes. It is almost impossible to distract Halie now. Even when her mother has to come to the classroom, her teacher has to tap her on the shoulder in order to get her to turn away from her work. She now stands out as one of the smartest, quickest kids in the class!

— **HALIE S.**, girl, age 9, (told by a LearningRx Center Director)

My experience at LearningRx was truly amazing—totally transformative. It’s a fantastic place for adults as well as kids. Last year I had the unfortunate experience of failing my exam to get licensed as a Marriage and Family Therapist (MFT). I came into Learning Rx to help my memory and processing because I was in a learning rut; my brain couldn’t take in any more information. What I experienced was beyond my expectations. It felt like a veil on my brain was lifted and I was thinking more clearly, remembering with ease. After my Learning Rx training, I was thrilled to pass my exam and get licensed as an MFT! Thank you for your time, patience, and support!

— **KIMMY**

Prior to LearningRx, Andrew struggled with visual processing which affected homework organization and the ability to retain things he studied. He’d study and still did poorly because things weren’t sticking. His mind was trained to be able to see the things he was missing. Work became easier and he enjoyed it. He was pleased he stuck through and progressed as well as he did. He thought it was cool Mom and Dad couldn’t do some of the exercises he could. After LearningRx, organization was easier for Andrew and visual processing increased. Studying is fun because there isn’t the frustration there was before. He can concentrate on learning what he needs and he’ll retain the

info. This shows in increased grades, and he's much happier. LearningRx has been a blessing to him.

— **MRS. BROWN**, Andrew, age 14

My son, before training, would do everything he could to get out of doing some of his work...especially reading and writing...because he could not recognize letters or sounds. Since completion of the LiftOff program at LearningRx, my son can read and remember things easier, which has boosted his self-confidence. He would not have advanced to first grade this year without having completed the LiftOff program.

— **ANONYMOUS**, boy, age 7

We discovered the LearningRx two years ago and my adult son with TBI has been attending ever since. It's a wonderfully-designed program that targets the particular learning needs of each person. The staff is caring and considerate and treat you like part of their family. The results are impressive and my son has overcome many of his struggles, gaining a lot more confidence. I highly recommend LearningRx.

— **ANONYMOUS**

I brought my English grade up from 72 to 95 in three weeks. I feel like I have progressed in reading and writing.

— **MONICA**

Jason, a 23-year-old mechanic who felt that he was being held back in life by poor memory skills, enrolled at LearningRx around the same time he started a new job with a different auto dealership. "I noticed an immediate difference in my ability to

learn the new procedures,” he said. “My job is very procedure-based, so being able to remember information and know that it’s the right answer is huge.”

All of Jason’s cognitive skills were measured immediately before and after his brain training program, and his largest improvements were made in short-term memory and auditory processing. In short-term memory alone, Jason jumped from the 35th percentile to the 77th.

Is Jason happy with the results? You bet he is! “I tell everybody I meet about LearningRx,” he says. “It’s indescribable!”

— **JASON**, age 23, mechanic

Jacob had many physical and developmental challenges from prenatal brain swelling. We insisted that he read three pages every evening and he always resisted. Around four or five weeks into the program, Jacob read thirty-eight pages of *Boxcar Kids* and I had to make him stop and go to bed!

— **PARENT OF JACOB**, age 17 years old

Our LearningRx experience far surpassed any expectations we had for our son. Before completing the program, he was considered by his teachers to be a well-behaved young man that was lazy, unmotivated, and unfocused. Although he exhibited signs of high intelligence, our son received as many Ds and Fs as he did As and Bs. Our son found a LearningRx brochure in the trash can and essentially begged for help as the anecdotes in the flyer sounded like his own personal story. As he began training with Mrs. Gloria, things started changing immediately. Our son stated that for the first time he actually felt he had partners (Mrs. Gloria and Mrs. Diane) that were on his side to support him in every way. We are especially grateful for the patience

and support that Mrs. Gloria provided each time she worked with him. Her encouragement led him to take ownership of his training and thus he studied tirelessly at home in order to meet his goal at completing the program successfully. As a result, our son received all As on his last report card (with the exception of one B, where he scored an 89.4%), made All Region Band, and received 4th place in the Regional Geometry contest at UALR.

— **KW**, mother of 15-year-old son

As an adult in the middle of my career in Retirement Human Resources, something did not seem right. My mind was not as fresh as it used to be. I was lacking the confidence and motivation I once had. Thankfully, LearningRx training allowed me to learn new ways of thinking. It helped me realize new potential I lacked in myself. It helped me utilize the knowledge I had hidden deep below the surface and I gained back confidence tenfold. It was worth my time and investing in myself.

If you are looking to sharpen and refresh your productivity or skill set at work and home, you've reached your destination in LearningRx. They have a courteous and professional staff ready to help you. I highly recommend the program, whether you are young or old.

— **JONATHAN**

We would (and do) enthusiastically recommend your programs. In the beginning, we noticed small things, like Daniel enjoyed playing cards (*UNO* and *Go Fish*) and other games more without becoming so frustrated. We also pretty quickly saw his self-esteem increase. The love and affirmation he received from [his trainer] and the successes he was experiencing in his

training really made him feel good about himself.

His attention span has definitely improved along with his ability to concentrate. His reading has improved dramatically. He is much more confident of his ability, so he is willing to push himself to read more difficult books. His math has also improved. He moves much more quickly through his work and does his work more independently.

Daniel has also just loved coming to see everyone—from the LearningRx Director and staff, to the other trainers and students. He felt like LearningRx was a fun, safe, loving place, which has helped get him to each session because it has been fun work for him and us!

Thanks so much for everything. Cassandra has been beyond wonderful. We believe the Lord truly placed us together at this particular time in Daniel's life. What a blessing you all have been.

— **DEBORAH S.**, mother of Daniel, age 9

I can do all my homework every night. I enjoy reading now. I made an 83 on my language test! PARENT: We have seen great improvement in Ashley's study and memory skills. She works more quickly and accurately. We definitely recommend LearningRx.

— **ASHLEY**

After Elizabeth, a lawyer, went through chemotherapy, she found herself struggling to process information as quickly as she once had. The cognitive assessment she took at LearningRx revealed that her poorest performing skills included executive processing, logic & reasoning, and long-term memory. After completing brain training, she saw dramatic improvement in all of her cognitive skills, but particularly in the weaker skills that were making life more difficult than it needed to be.

Elizabeth says, “Words would not do justice to describe the incredible gains I made through the training program at LearningRx. With the help of my incredibly patient trainer, I was able to improve my processing speed, memory, and overall cognitive functioning in ways I thought were impossible. My post-training test results were absolutely astounding. The program has changed the way I approach everything in my life. I am delighted with the results and recommend LearningRx for anybody.”

— **ELIZABETH**

As an adult, LearningRx helped me reverse memory loss due to radiation treatment. I returned to my job more confident and able to assimilate information more quickly. The staff is very professional and knowledgeable. I’d recommend a program to adults who want an edge in their career.

— **J.H.**

Our daughter was struggling in middle school academically; primarily not reaching her potential in all subjects. Because her grades and scores were not to our satisfaction, we went through numerous teacher conferences, positive and negative reinforcement discipline techniques, filled out multiple ADHD score sheets, and talked to friends, teachers, church teachers, family members, and other parents to see what we as parents had done or were doing wrong.

We tried tutoring and taking away extracurricular activities and finally had a formal evaluation with two Ph.D. private school psychologists. We were able to see that our daughter had a learning style that was weak with auditory input and strongest with oral and visual input. She learned best with creative presentations of routine material.

The solution was to tutor for her learning style but that wasn't effective and we resorted to repeating her years until we heard of LearningRx. LearningRx can best describe its strengths and methods in its own literature that is readily available. Our experience after 18 weeks was that LearningRx quickly assessed and pinpointed our daughter's learning style and quickly corrected it through diligent and consistent brain training exercises and assignments. The staff was indispensable and the training was great. Her improvement has been in all areas and has been notably improved across all measurable points. She now has a foundation to build on, will continue the exercises, and will hopefully finish her year strong with grades that she has always been capable of.

— **DR. JOHN E. MD**, father of Elizabeth, age 13

Before my son, Aron, began LearningRx, he was struggling greatly in school to stay focused and begin and finish his work. He was on medication for ADHD and depression. In just a few weeks he was off the anti-depressant and had become a lot more sociable and confident in himself. For about two years prior to beginning LearningRx, he spent his spare time at home alone. This summer Aron was at the pool daily, rode his bike more than ever, and was spending the night with other friends and having them spend the night with him. He easily made friends in new places when before he would have refused to go to new places. He did not take one pill for ADHD the entire summer and I still have all of my hair. His therapists/psychiatrists are very excited about the improvements he had made due to LearningRx and are looking forward to learning more about the program so they can recommend LearningRx to their patients.

Aron began LearningRx just a few weeks before the end of the school year so we have not had a chance to see how well it will help with schoolwork. But, we are confident that once he starts school this week, the changes we will see will be phenomenal! His day-to-day tasks show us that he is more alert to what is going on around him. When he thinks he has forgotten something we have told him, he is amazed to find that if he thinks for a minute, he remembers. When told to do something, he will usually do it right away, without as much argument as before, if he argues at all. He can go into his room to clean it and not feel overwhelmed. He can go in and assess the situation and begin on his own and can continue cleaning and organizing on his own. Those are the things he could not do before. These things show me that when school starts he will be able to work more independently, begin working on his own without being pushed, be able to keep up with note taking, and when taking tests, be able to remember the answers.

Aron will be starting a new school this week; he is not anxious about it. He is actually getting excited about it. Two years ago, he was so anxious about school that even two months into school he would get sick in the morning. This was a school where he had schoolmates he had known for two years. The school he will begin this week, he will not know anyone.

I am so looking forward to this school year. I believe that there will be a lot less stress than the past three years have been. LearningRx is the reason for this. I would highly recommend it to anyone, child or adult. This program would be beneficial to anyone. I have two more children, one with ADHD and one without. I plan for both of them to eventually be students at LearningRx. My husband runs a company that employs people who have to be able to put a lot of detail into their work. He is looking at LearningRx to offer training for employees.

The investment may seem like a lot, but I can tell you it's worth it. If all my son was to get out of this was confidence in himself and greater self-esteem it would be worth it. Seeing the smile on his face and hearing him laugh was worth every penny.

When we received our post-test scores, we knew that there would be a great improvement, but what we saw on paper was amazing. It was more than we expected. His age equivalence jumped anywhere from 2.5 years to 11.5 years. It was amazing.

— **ELLEN S.**, mother of Aron, 14 years old



EINSTEIN MOMENT

*I never teach my pupils; I only attempt to provide the
conditions in which they can learn.* — A. Einstein

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Resources

To Contact a LearningRx Center Near You

LearningRx, Inc. is a network of cognitive skills and reading training professionals who are actively engaged in enhancing the learning ability of students all across the nation. Visit **LearningRx.com** to locate a center near you, and call today. If there is not a LearningRx in your community, call us about remote training options at **866.272.4601**.

Online Resources from LearningRx

Once you log on to **LearningRx.com**, you can also:

- Take a free skills survey at **<https://LSDS.LearningRx.com>**
- Discover the history and development of the LearningRx programs
- Learn more about cognitive-based learning and reading training
- Explore the science & research behind cognitive skills testing and training
- Download our Client Outcomes Report at **[Download.LearningRx.com/Results-Report.pdf](https://LearningRx.com/Results-Report.pdf)**
- Find the latest peer reviewed research, ongoing research, and articles at **GibsonResearch.org**
- Sign up for the brainbuzz newsletter at **BrainBuzz.LearningRx.com/Brain-Buzz-Sign-Up-Form**
- Learn about the founder of LearningRx, Dr. Ken Gibson
- Read and watch current reviews of families sharing their LearningRx experiences and results at **StudentShoutouts.com** or **LearningRx-Reviews.com**
- To purchase and take the Gibson Test go to **GibsonTest.com**

No LearningRx Center Near You, Yet?

LearningRx training produces unmatched gains in cognitive learning and reading skills. The needs are real and growing, and prime territories are still available. If you are interested in transforming lives for a living and bringing this important program to your community, please visit **LearningRx-Franchise.com**. LearningRx also offers licensing worldwide, for more information on BrainRx licensing, please visit **BrainRx.com**.

One name has emerged out of the last century to mean smart: Einstein. In this book, Dr. Ken Gibson helps parents understand that there is a little bit of Einstein locked up in each of their children—regardless of how they perform in school right now—and how to unlock it.

Dr. Gibson is a pioneer, making current brain science extremely practical for parents as you'll soon discover.



DR. KEN GIBSON

is a passionate education pioneer. In January 2002, he founded LearningRx, Inc. For over 35 years, Dr. Gibson devoted himself to the development of systems that can effectively measure and train cognitive learning and reading skills. Under his vision and leadership, over half a dozen practical new applications for cognitive skills testing and training have been developed and are in use across the globe today. Dr. Gibson lives and works in Colorado Springs, Colorado.

SMARTER BEGINS IN THE BRAIN...FOR EVERYONE.

Serving as the founder of LearningRx, Inc. and the nationwide system of LearningRx Training Centers, Dr. Gibson knows from firsthand experience that children and adults can learn faster, comprehend more, and get smarter. The secret: cognitive skills training and cognitive skills-based instruction in reading, math, and learning readiness.

Smarter begins in the brain...for everyone. Einstein didn't have a bigger brain than the rest of us, but he did have a significantly greater number of active synaptic connections in his brain. These neuronsynaptic connections became the network that produced his amazing intellect. Just as with Einstein, these connections form pathways in your child's brain that process and retrieve information, analyze variables, and apply logic and reasoning—and they can be developed. This book will show you how to literally transform your child's ability to learn and read...with lasting results.



KIM HANSON

CEO of LearningRx, is a mom of four, an educator, and long-time cognitive trainer. She began her leadership role with the organization in 2004 as executive VP and was named chief executive in 2017. Her career passion is to help professionals, educators, and parents learn more about cognitive skills training and the dramatic results it can have on real life performance. She lives in Castle Rock, Colorado.



TANYA MITCHELL

has trained thousands of professionals and educators in cognitive training and is the Chief Research and Development Officer for LearningRx. Tanya, a mom of four, is passionate about helping parents and professionals learn about how brain training transforms lives. She lives in Colorado Springs, Colorado.

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