



Science Behind the Story (SBS)
Talents: Everyone Has One (🧠 A Cognitive Health Story)
(K- 5-6yrs)

This story describes how even though we all have a brain different brains work differently. This makes for a diverse world, where everyone has strengths and weaknesses.

🧠 Your brain helps you to do things. Just like people's bodies are different, people's brains are different as well.

The brain, which is part of your nervous system, helps you to control all of your behaviors (hopkinsmedicine.org).

Your behaviors include survival behaviors, which are include behaviors which help to keep your body and your brain in a physiological equilibrium. Behaviors also include those involving higher cognitive functions, which includes attention, learning, and memory. Higher cognitive functions involve sensory information and internal representations (ideas) which are then used to produce adaptive responses.

While everyone has the similar structures within their nervous systems, including the brain, spinal cord, peripheral nerves, etc. (brainfacts.org), everyone's brain is also different. The fact that our environment, both internal and external, is constantly changing requires our brain has the ability to also change, which is known as neuroplasticity (Fuchs, 2014; Demarin, 2014).

Everything you do changes your nervous system and makes it unique. Everything that you do, see, feel, taste, touch, hear and think is not only received, processed and stored by your nervous system, but it also changes your nervous system. This makes your nervous system unique. According to one of my favorite professors at UCLA - Dr. Arnold Schiebel - you are your nervous system - so your nervous system is you.

The ultimate role of the nervous system is to receive, process, store information and produce a number of physiological responses or behaviors. The brain changes in response to your behaviors and it then changes your behaviors so that you can survive and the species can propagate.


🧠 There are some things that you will be good at without even trying, and there will be some things that you have to work harder to do. Everyone has strengths and weaknesses.

There are some things that some people are just naturally born to be able to do this has to do with genetics and exposure to various environments (Vinkhuyzen, 2009). In the same way that genetics has a lot to do with your body structure, for example making some people tall and some people shorter, genetics also has to do with the capabilities of your brain, for example making some people better at math than others (Williams, 2019). BUT, in the same way that we can come up with ways to overcome our height – using

step ladders to reach item that are not within our reach – we can come up with ways to make doing math easier and, even more enjoyable.

By understanding strengths and weaknesses, in both our body and our brain, we can find ways to use our strengths to our advantage and ways to enhance our weaknesses. For most things, making the tasks more enjoyable will cause the strengthening of connections within the brain – activating our brains reward pathway (Tabibnia, 2020). The nervous system is built to experience joy and it seeks to repeat behaviors that activates our reward pathway (Koob, 2001).

Understanding that everyone has talents and that even if you are not born with certain talents that practice can make perfect. In some cases, being able to complete a task that may not involve your talents is even more gratifying than doing something that comes easy to you – which means your brain will be happy.

 We know that everybody has talents. Finding what kinds of things that you are good at doing and that you really like to do and then doing them is the secret to a healthy brain.

While it is important to learn what our weaknesses are, it may be more important to identify your strengths or talents. When you are able to complete a task, whether it is reading a book, getting in your “steps” for the day, organizing your to do list, or finishing any project you are undertaking, there is a sense of accomplishment and joy that you feel. The same thing happens with children.

In the same way that children learn about their talents from reinforcement from caregivers, children need to be challenged into performing for the sheer feeling of accomplishment. Both of these situations cause the activation of their reward system. The activation of the reward pathway is found to cause the release of many chemicals in the brain which have been found to advantageous to the health of the brain (Dutcher, 2018).

National Standards:

Next Generation Science Standards

- Crosscutting Concepts:
 - **Stability & Change:** For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.
 - Things may change rapidly or slowly.
 - Some things stay the same while other things change.
 - **Cause & Effect:** Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.
 - Events have causes that generate observable patterns.

ASCA (American School Counselors Association):

Personal/Social Development

- **Standard A:** Students will acquire the knowledge, attitudes and interpersonal skills to help them understand and respect self and others.
 - PS:A1 Acquire Self-knowledge
 - PS:A1.1 Develop positive attitudes toward self as a unique and worthy person.
 - PS:A1.3 Learn the goal-setting process.
 - PS:A1.4 Understand change is a part of growth.

Academic Development

- **Standard A:** Students will acquire the attitudes, knowledge and skills that contribute to effective learning in school and across the life span.
 - A:A1 Improve Academic Self-concept
 - A:A1.1 Articulate feelings of competence and confidence as learners A:A1.2 Display a positive interest in learning.

- A:A1.3 Take pride in work and achievement.
- A:A1.4 Accept mistakes as essential to the learning process.
- A:A1.5 Identify attitudes and behaviors that lead to successful learning.

References:

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<http://www.brainfacts.org/The-Brain-Facts-Book>

<https://www.hopkinsmedicine.org/health/conditions-and-diseases/anatomy-of-the-brain>