

Cognitive Ergonomics from the Inside Out™ The Intersection of Science and Mindfulness

Ergonomics is the study of people's efficiency in their work environment. It's about the fit between the user and the interface (fitting a job to the person). In the tangible world, the field is quite advanced. We have chairs and desks that can be customized based on the height and weight of an individual.

Unfortunately, we are **cognitively illiterate**, and, thus, the field of cognitive ergonomics is quite primitive. There are three key factors in cognitive ergonomics: the **ambiguity of executive functioning**, the **intangibility of cognition**, and the **need for individual participation**. Rather than fit the interface to the person's cognitive behavior, the emphasis has been on modifying behavior to fit the interface.

In 2010, Dr. Russell Barkley reconceptualized ADHD as an executive function impairment. His construct introduced a precise definition of executive function so that we could be more precise in determining what is and is not an executive function. This was a titanic shift in how we look at cognition.

His model **defines specific** mind tools involved in cognition* that we can use as a means to understand executive function and thinking as a process to solve problems and fit the interface to cognitive behavior. Theoretically, this was a giant leap. **Practically**, we need a way for individuals to observe their own cognitive behavior tangibly via self-reflection.

**Cognition: the mental action or process of acquiring knowledge and understanding through thoughts, senses, and experiences.*

We make observations using our senses refined by using technologies or tools like microscopes or telescopes. If what we observe registers with our senses, it is tangible. If it doesn't register, it is intangible. Color is tangible, but it's intangible for one who is blind at birth.

So, how do we witness something that doesn't register with our senses or when we don't have a tool that helps us register something with our senses? Like color to a person blind at birth, we can't.

We can grasp intangible concepts if we are **put into an experience** with guidance on what to observe or **how to interpret** something to understand a concept. For example, those who are blind at birth do not have a sense of depth or space. They can't physically grasp it. They can understand it conceptually if we put them in an experience.

Imagine a blind person sliding his hands over a large wall to get a sense of its size, then sticking a pin in the wall and being told the pin represents the earth in the galaxy in the same way the galaxy is to space. Space isn't tangible, but with this experience, they can grasp the concept.

In the shadow of Dr. Barkley's construct, ADHD coach Jeff Copper has developed a revolutionary new cognitive observational tool called **AttentionScope™**. It is a collection of experiences (attention exercises) and concepts used mindfully to witness executive functions, cognitive behavior, and cognitive processes tangibly.

With a **precise definition** of executive functioning, and **AttentionScope™** to observe, we can train individuals to use the construct and the tools to become **cognitively literate**. These building blocks are necessary for individuals to participate in the problem-solving process to design an interface that maps to their cognitive behavior and cognitive constraints. The birth of **Cognitive Ergonomics From the Inside Out™** is the **intersection of engineering and mindfulness** (via self-reflection). This is a titanic shift in how we approach the design of interfaces.