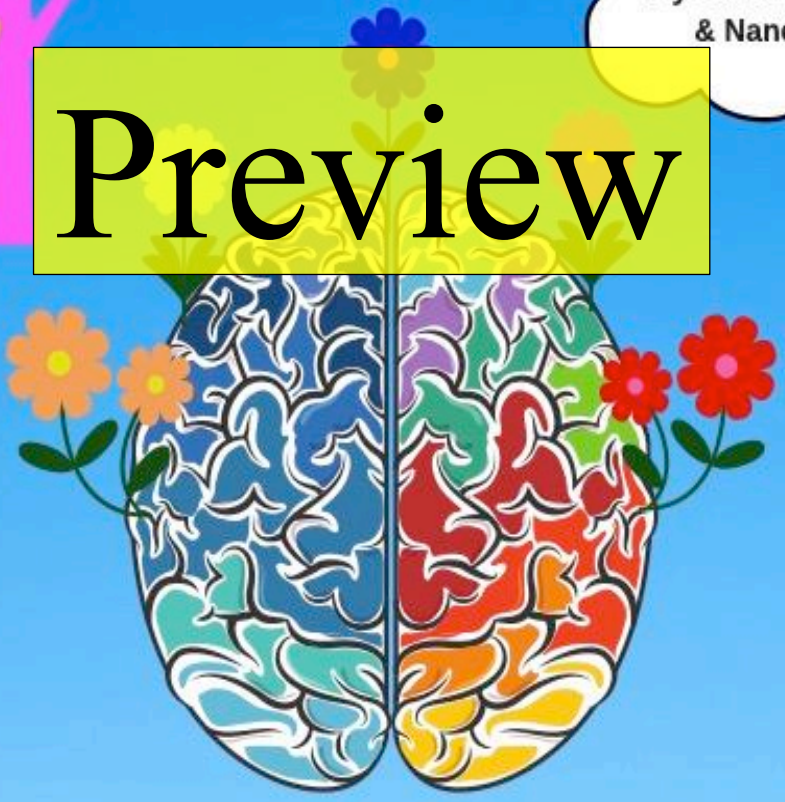
MPower

Cognitive Remedial Card Games

By Dr. Erica Warren
& Nancy Platt

Preview



Fortifying Foundational Skills For Academic Success

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The complete MPower publication includes to documents:

- MPower Manual and Instructions 2019
- MPower Cognitive Remedial Cards 2019

Introduction

Cognitive, remedial training involves strengthening the core intellectual skills that are the foundation of learning. **MPower** offers a selection of multisensory games that improve memory and the processing of information for enhanced learning of core academics, such as reading and math. This publication is ideal for developing early literacy skills, teaching new ways to encode knowledge, and helping struggling learners find joy in the learning process. **MPower** is a powerful and fun remedial tool that can be used by therapists, teachers and even parents to achieve sharpened cognition and enriched learning for their students or clientele.

Much like a personal trainer can strengthen parts of the body by focusing attention on specific muscles, cognition can be exercised to build new neural pathways when students or clients play the **MPower Games**. Some reports suggest that brain training games do not apply to early literacy and learning, but because these games utilize foundational academic symbols and concepts, there is no doubt that regular practice will improve core academic readiness. The games in this publication exercise the recognition and naming of:

- Letters
- Numbers
- Days of the week
- Months of the year
- Shapes
- Common objects

In addition, students or clients exercise and strengthen the following areas of cognition which are all needed to be a competent learner:

- **Visual processing**: The ability to scan and make sense of visual information and symbols.
- **Auditory processing**: The ability to process and understand information that is heard.
- **Sequential processing**: The ability to process information in a series or ordered sequence.
- **Simultaneous processing**: The ability to categorize, integrate and synthesize material.
- **Immediate visual memory**: The ability to remember what was just seen.

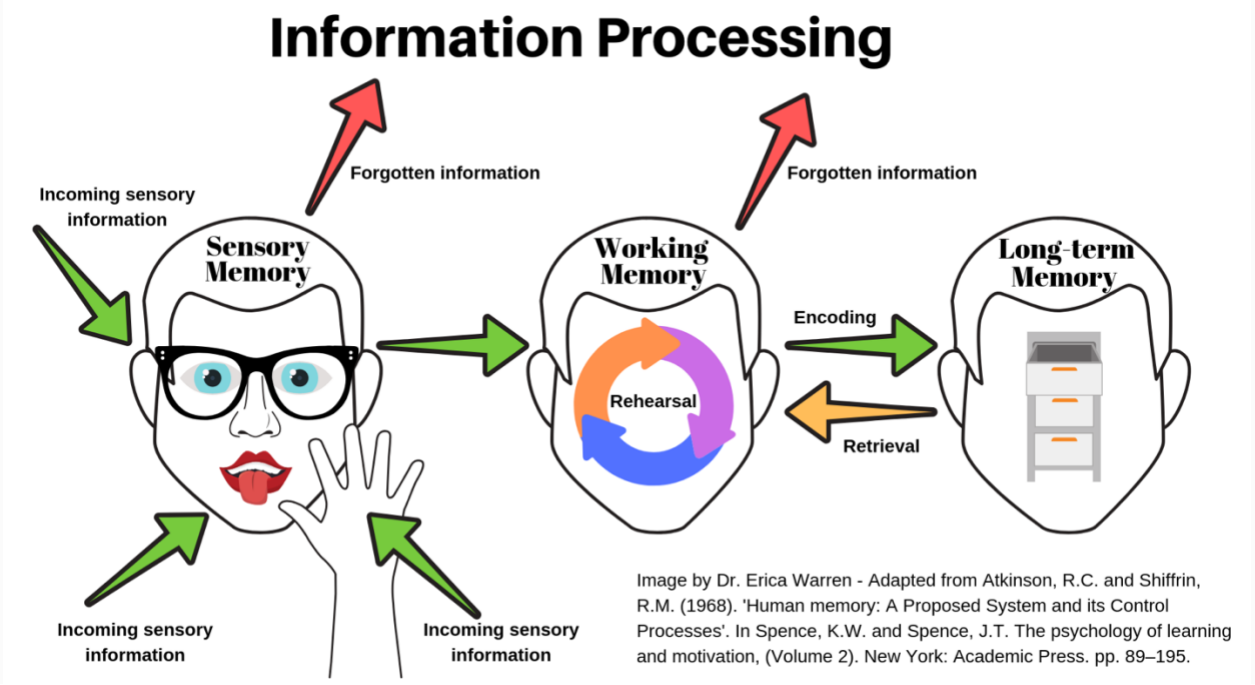
- **Short-term memory**: The ability to retain information that requires little processing or interpretation for a few seconds to about 30 seconds.
- **Attention**: The ability to maintain focus on a selected stimulus, sustaining that focus and shifting it at will.
- **Executive Functioning (EF)**: The ability to shift tasks, self-monitor, self-initiate, plan, prioritize and organize information.
- **Attention to detail**: The ability to thoroughly and accurately perceive and consider all the details and then determine the most important piece or pieces of information.
- **Rapid Automatic Naming (RAN)/Word finding/Word recall**: The ability to quickly retrieve the correct word from memory when it is needed.
- **Visual-spatial skills:** The ability to perceive relationships between objects and recall as well as manually manipulate visual information in space.
- **Working Memory (WM)**: The ability to temporarily retain information in memory, perform some operation or manipulation with it, and produce a result.

Again, **MPower** is a form of cognitive, remedial training that can be used by therapists, teachers and even parents to achieve improved cognition and learning.

The Research Behind MPower and the Cognitive Gains

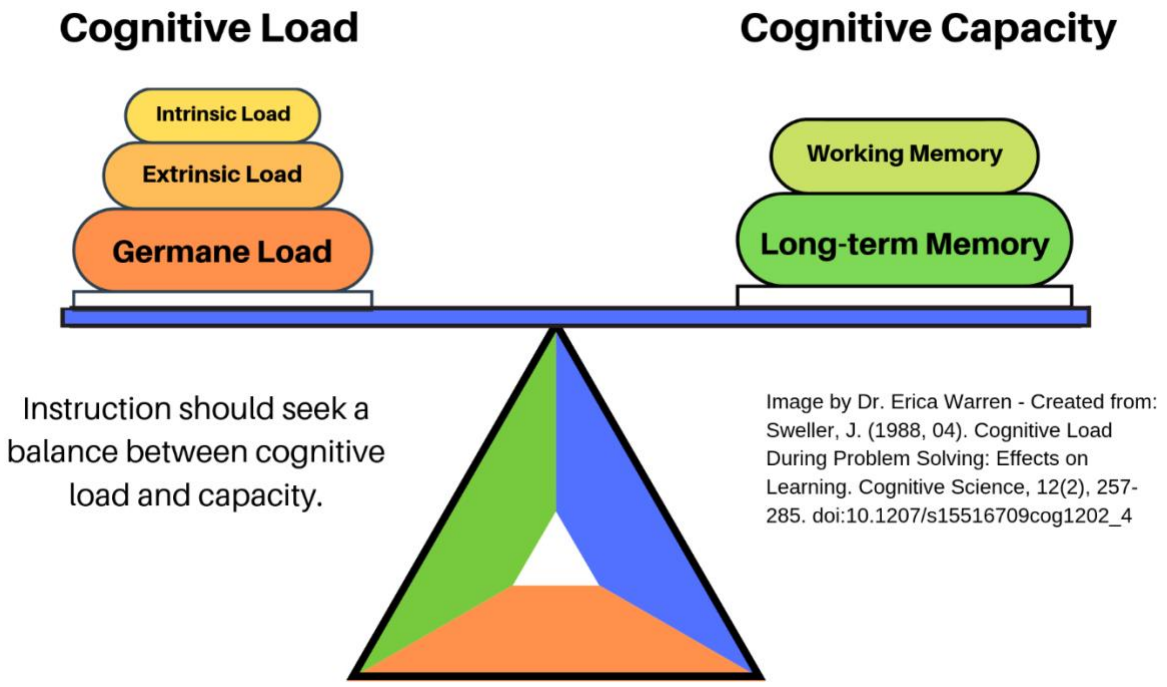
How Does Information Get Processed?

In the late 1960's, an **information processing model** was created to describe how the brain processes information. The original researchers defined four main stages: Sensory Input, Sensory Memory, Working Memory and Long-term Memory (Atkinson & Shiffrin, 1968). Since then, many researchers have made additions to this concept, but the basic model still remains unchanged.



As reflected in the image above, learners are first presented with Sensory Input or information. The Sensory Memory then filters the content by selecting the most important information and passing it on to the Working Memory. Subsequently, Working Memory, which generally holds between five and nine items (or chunks) of information, either processes and encodes this information into Long-term Memory or discards it. When deposited in Long-term Memory, knowledge is filed into chunks called "**schemas**." A **schema** is a set of linked mental representations of the world that helps organize and interpret information. For example, the brain has schemas for different main ideas such as transportation, food, clothing, or math concepts and phonics.

This process is key to another piece of the puzzle known as the **Cognitive Load Theory** (Sweller, 88). John Sweller proposed that learning is impacted by limited capacity in working memory. Sweller defined three types of cognitive load: intrinsic, extraneous, and germane. Intrinsic load has to do with the inherent difficulty of the subject matter or information being input. It is influenced by the complexity of the lesson and how much prior knowledge a student has about the subject. Extraneous load refers to the manner in which information is presented to learners as well as the teaching style, lesson materials, and the learning environment. Germane load is the productive thinking that causes students to form and consolidate long-term memories. Sweller suggested that since working memory has a limited capacity, instructional methods should avoid overloading it. A sense of "cognitive overload" occurs when working memory capacity is exceeded. Once this happens, students are unlikely to comprehend the information and transfer it to long-term memory (Siegler, Alibali, 2015; Sweller, 1988; Sweller, Merriënboer, & Paas, 2019).



The image above shows the importance of maintaining a balance between cognitive load (intrinsic load, extraneous load and germane load) and cognitive capacity (working memory capacity and long-term memory capacity).

Four Factors Which Increase Cognitive Load.

1. Learners lack intrinsic load capacity or general knowledge.
2. Learners' approach to learning is labored and they have not reached a level of automatization. Automatization describes when a skill, action, or behavior has been performed and practiced so much that it requires little or no conscious effort.
3. Teachers' presentation of the lesson is too dull or too complex.
4. Learners do not possess the cognitive techniques that can help them manage the Germane load or productive thinking with the content.

MPower Helps Balance Cognitive Load and Capacity

MPower was designed to help learners create the necessary balance between cognitive load and cognitive capacity. The card games provide exposure to early literacy concepts such as letters, numbers, shapes, months of the year, and days of the week. In addition, MPower integrates multisensory and playful content into lessons which makes the learning process more enticing and engaging. Repeated play helps to develop skills to a level of automatization. In other words, over time, the player's abilities improve until they can access and process the information with little to no effort. When this sense of automatization is reached, it creates more cognitive space for working memory and learning. Finally, MPower can help struggling students or clients increase their ability to manage Germane cognitive load. Recent research suggests that segmenting and sequencing techniques can help learners manage content that might otherwise create cognitive overwhelm (Sweller, Merriënboer, & Paas, 2019). In other words, MPower teaches the brain how to quickly organize information during the encoding process, so recall is enhanced.

Who Benefits from MPower?

This publication was created for learners of all ages and abilities:

1. Preschoolers that need to develop cognition and basic core academic skills.
2. Children with learning disabilities that exhibit difficulties learning academic content.
3. Head injured victims that need to rebuild cognition.
4. Elderly people that want to maintain or rebuild cognition.

Specifically, **MPower** aids those that are exhibiting one or more of the following difficulties:

1) **Many learners don't have the core cognitive skills to manage their learning.** (Savage, 2005; Passolunghi & Seigel, 2001; Gunnison, Kaufman& Kaufman, 1982; Das, Mensink, 1989; Chu, Vanmarie & Geary, 2016, Bull, Johnston, 1997). Poor exposure and/or weaknesses in basic cognitive processing areas can make school work an overwhelming chore.
2) **Many learners have come to dislike the learning process altogether**. Traumatic learning experiences and negative associations with school work often result in a sense of learned helplessness and many of these learners will do whatever they can to avoid activities that exercise cognition (Fincham, Hokoda, & Sanders, 1989, 02; Diener & Dweck, 1978; Valås, 2001, 03).

Clearly, developing core cognitive skills and making the learning process fun and engaging is key. This publication was created for my clientele, and others like them, to build competencies and rekindle a joy for learning by presenting the lessons and exercises as fun activities and games.

Key Tips:

- Before commencing with these games, you may want to rule out any vision issues by consulting with your pediatrician or an optometrist. If vision is not an issue, then these activities and games will help to exercise and remediate these identified cognitive weaknesses.
- It is common for students or clients to look away from material while they are thinking, which is a learned behavior that interferes with fluency. Encourage them to keep their eyes on the game, so they can also improve their attention and processing speed.
- These activities should be printed in color on card stock. They can also be printed on standard printing paper and then laminated.
- There are a variety of games that can be played with the **MPower** cards. You can always expand upon the ideas presented in this document. Use your imagination!
- Please refer to the descriptions and table on the following pages to determine the best activities/games for each individual student or client. Also note that all the games can be simplified by using only parts of the deck.

Individual and Small Group Instruction and Activity Suggestions

There are so many fun ways to work with the **MPower** cards. A single player can use a stopwatch and try to beat prior times, or several players can compete for the win. Players can work with a portion of the deck (single category or several categories combined) or all the cards at once. If timed situations create anxiety, play without a stopwatch. The approach should depend on individual abilities and goals. No matter which way you play, encourage the player(s) to work consistently and quickly to build attention and processing speed. Here are several examples:

Select all the letters:

Ask questions like:

- Can you place the letters in alphabetical order?
- Can you place the letters in reverse alphabetical order?
- Can you find the two letters that make a "k" sound?
- Can you find all the vowels?
- Can you find all the consonants?
- Can you sort the letters into two stacks (vowels and consonants)?

Select all the numbers:

Ask questions like:

- Can you place the numbers in numerical order?
- Can you place the numbers in reverse, numerical order?
- Can you find and order the even numbers?
- Can you find and order the odd numbers?
- Can you sort the numbers into two stacks (even and odd numbers)?

Select 10-20 object cards:

Ask questions like:

- Which card rhymes with the word merry?

- Which objects begin with the letter T?
- Which cards begins or ends with the letter E?
- Which cards have 3 syllables?
- Which cards have numbers?
- Which cards show methods of transportation?

Use the whole deck of cards:

Flip over one card at a time and ask questions like:

- Can you think of a word that rhymes with each symbol, word, or image (e.g., boat - float)? Can you then sort the cards into two stacks: rhymable stack and not rhymable stack?
- Can you say each symbol, word, or the name of the image (e.g., Red)? Now can you think of another word that starts with the same letter sound (e.g., Robin)?
- Can you sort the cards that are similar in some way?

Games and Directions

There are Two Ways to Play:

- All games can be played individually, with or without the use of a stop watch or timer. Players can compete against themselves or others to improve their time.
- The games can also be played with multiple participants. All the cards are shuffled and dealt to the players. The first player to use all their cards is the winner.

Difficulty Levels:

Beginners			Intermediate				Advanced	
1	2	3	4	5	6	7	8	9

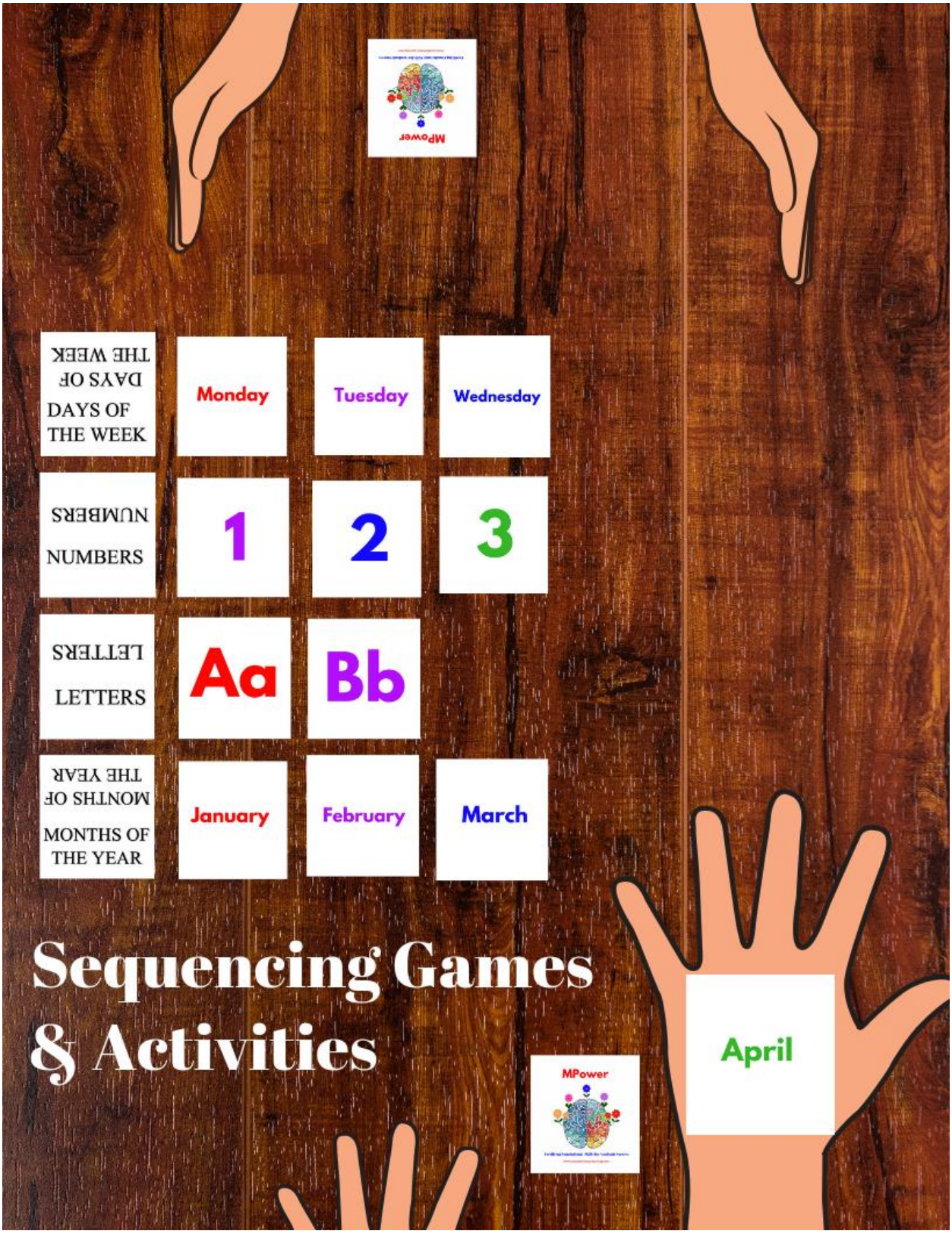
Name of Game	Cognitive Processing Exercised	Difficulty
COLOR SPLAT **(color code)**	• Visual processing/discrimination • Executive functioning • Simultaneous processing • Processing speed • Attention	Beginners 1
COLOR SPLAT SAY **(color code)**	• Visual processing/discrimination • Executive Functioning • Simultaneous Processing • Processing Speed • Attention • Memory • RAN/Memory	Beginners 3
COLOR SPLAT SAY SWITCH: **(color code)**	• Visual processing/Discrimination • Executive Functioning • Simultaneous Processing • Processing Speed • Attention • Working Memory • Mental Shifting • RAN/Memory • Visual Spatial Skills	Intermediate 6
SHUFFLE DASH SAY EZ: **(color code)**	• Visual processing/Discrimination • Executive Functioning • Simultaneous Processing • Processing Speed • Attention • Working Memory • Mental Shifting • RAN/Memory	Beginners 3

SHUFFLE DASH SAY HD **(categorize)**	• Visual processing/Discrimination • Executive Functioning • Simultaneous Processing • Processing Speed • Attention • Working Memory • Mental Shifting • RAN/Memory	Intermediate 5
ORDER POW EZ **(categorize/order)**	• Visual processing/Discrimination • Executive Functioning • Simultaneous Processing • Sequential Processing • Attention • Working Memory • Mental Shifting • Processing Speed • RAN/Memory	Beginners 1
ORDER POW HD **(categorize/order)**	• Visual processing/Discrimination • Executive Functioning • Simultaneous Processing • Sequential Processing • Attention • Working Memory • Mental Shifting • Processing Speed • RAN/Memory	Beginners 3
ORDER WOP EZ **(categorize/order)**	• Visual processing/Discrimination • Executive Functioning • Simultaneous Processing • Sequential Processing • Attention • Working Memory • Mental Shifting • Processing Speed • RAN/Memory	Intermediate 5

ORDER WOP HD **(categorize/order)**	• Visual processing/Discrimination • Executive Functioning • Simultaneous Processing • Sequential Processing • Attention • Working Memory • Mental Shifting • Processing Speed • RAN/Memory	Advanced 7
BEAT BOP **(syllable division)**	• Visual processing/Discrimination • Executive Functioning • Simultaneous Processing • Sequential Processing • Attention • Working Memory • Mental Shifting • Processing Speed • RAN/Memory • Auditory Processing	Intermediate 4
SUPER SHIFT **(categorize/shift)**	• Visual processing/Discrimination • Executive Functioning • Simultaneous Processing • Attention • Working Memory • Processing Speed • Mental Shifting • RAN/Memory	Intermediate 5
SUPER SHIFT SEQUENCE **(categorize/shift/order)**	• Visual processing/Discrimination • Executive Functioning • Simultaneous Processing • Sequential Processing • Attention • Working Memory • Mental Shifting • Processing Speed • RAN/Memory	Advanced 9

KAPOW **(categorize/shift)**	• Visual processing/Discrimination • Executive Functioning • Simultaneous Processing • Attention • Working Memory • Mental Shifting • Processing Speed • RAN/Memory	Intermediate 5
COLOR MATCH EZ **(memory match)**	• Visual processing/Discrimination • Executive Functioning • Simultaneous Processing • Processing Speed • Attention • Working Memory • Mental Shifting • RAN/Memory • Visual Spatial Skill	Beginners 2
CATEGORY MATCH HD **(memory match)**	• Visual processing/Discrimination • Executive Functioning • Simultaneous Processing • Processing Speed • Attention • Working Memory • Mental Shifting • RAN/Memory	Beginners 3

Sample Game Image 1



Sample Game Image 2

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Aspiring to empower learners of all abilities, Dr. Warren created a degree program that united coursework and research in Special Education, Educational Psychology, School Psychology, and Adult Education. Her doctorate from UGA focused on life-long issues in learning, the impact of learning difficulties across the lifespan, and comprehensive diagnostic evaluations. In addition, she earned a Master's degree in Educational Psychology, which covered life-span development, learning, and cognition. Dr. Warren often describes her bachelor's degree in fine arts as her secret weapon.

Dr. Warren's diverse education paired with 20 years of experience working with students has created a well-rounded expertise in the areas of mindful and multisensory learning, cognition and remediation. Much of Dr. Warren's time remains devoted to working with students on an individualized basis where her unique, multisensory approach focuses on compensatory learning strategies, cognitive remediation, study strategies, as well as remedial reading, writing and math methods. Dr. Warren founded Learning to Learn, her private practice, in 1999 and later created her educational resources and materials sites: Good Sensory Learning and Dyslexia Materials. In 2016, Dr. Warren began offering courses for learning specialists and educational therapists at Learning Specialist Courses.