Using the Science of Color for Students with Disabilities: Color Overlays

Are you noticing or hearing the following problems in your students?

-sensitivity to bright and fluorescent lighting and glare
-slow or inefficient reading
-print distortion
-frequent skipping of lines or words
-movement of print
-poor reading comprehension
-poor attention and concentration
-eye strain, watery eyes, blurred vision
-fatigue
-headaches and migraines
-poor depth perception

Using color overlays may help with many of these problems because most of them can be associated with a visual condition.

What are color overlays?

Color overlays are transparent paper in different colors. The most commonly used colors are blue gray, gold, gray, green, rose, turquoise, peach, purple, yellow, and aqua.

What is the **purpose** of color overlays?

Color overlays are meant to filter frequencies and wavelengths of the white-light spectrum. Many people with reading disabilities are very sensitive to these specific light frequencies (O'Connor, Sofo, Kendall, Olsen, 2001, p. 597).

How to introduce color overlays to students:

1. Meet with students who are struggling with reading and take a brief test on common symptoms of a visual condition found at www.irlen.com/get-tested
2. Explain to the student that by using color overlays, they might be able to improve their reading because their brain will be more receptive to words on colored paper than on white paper.
3. Have the student practice using different color overlays on a text and ask the same questions from the Irlen test to determine which color overlay is providing the most amount of clarity.
4. Keep the pretest and posttest, as well as notes on the most effective color overlay in the students' file.
5. Have the box of color overlays in a place where all students can access it to prevent the student with the learning disability to feel different from their peers. Invite the whole class to try them out, but ensure the students that need them have access to the color they need.

By using a color overlay while reading students will:
-experience improved print clarity and stability
-have fewer headaches,
- have reduced strain and fatigue
-improved reading comprehension,
-faster reading
-ease of tracking their place while reading.

Who can benefit from using color overlays?

All students can benefit from using color overlays while reading, but it has shown to be particularly successful with students with dyslexia and autism. It is important to test out different color overlays to see which provides maximum clarity for the student. The wrong color overlay can decrease their ability to read successfully (O'Connor, Sofo, Kendall, Olsen, 2001, p. 601-602). Students of any age can use color overlays to improve their reading.

Mearles-Irlen Syndrome (MIS)

- condition with symptoms of visual stress and visual distortion and is commonly found in students that have been diagnosed with dyslexia
- brain condition, not an eye condition
- MIS is easily treated with color overlays because they help correct the visual perceptual distortions

MIS affects:
-12-14% of the population
-46% of individuals with reading and learning disabilities
-33% with ADHD
-33% with autism
-55% with head injury, concussion, or whiplash

Students with Dyslexia (Kriss, Evans, 2005)

- If students have both dyslexia and MIS, color overlays can help the symptoms of MIS, therefore removing some of the visual challenges of reading
- studies have shown that color overlays did improve the rate of reading based on Wilkins Rate of Reading Test
- color overlays can help students read faster
- color overlays can steady the words on the page
- overall can provide more reading comfort for student

Students with Autism (Ludlow, Wilkins, Heaton, 2007)

- Students with autism are often sensitive to light and color and experience visual distortions, which is why color overlays have been successful.
- When testing rate of reading with student-selected color overlay, students exhibited less visual stress and a slightly higher reading rate.
- When testing rate of reading with best color for clarity against the student-selected color, clarity color resulted in significantly better reading performance than student-selected color.
- In selecting the color overlay, be sure to use the one that improves clarity and not the preferred color of the student.

Where can I get color overlays?

Order online at: http://irlen.mybigcommerce.com/colored-overlays/
http://www.amazon.com/s/ref=nb_sb_noss_2?url=search-alias%3Daps&field-keywords=color+overlays
Be sure to purchase color overlays that are thick enough that they will not break with excessive use. It is also recommended that color overlays be 8.5 inches by 11 inches to ensure it will cover the whole page.

References

Kriss, I., & Evans, B. J. W. (2005). The relationship between dyslexia and Meares-Irlen Syndrome. *Journal of Research in Reading*, *28*(3), 350-364.

Ludlow, A. K., Wilkins, A. J., & Heaton, P. (2008). Colored overlays enhance visual perceptual performance in children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, *2*, 498-515.

O'Connor, P. D., Sofo, F., Kendall, L., & Olsen, G. (2001). Reading disabilities and effects of colored filters. *Journal of Learning Disabilities*, *23*(10), 597-620.