

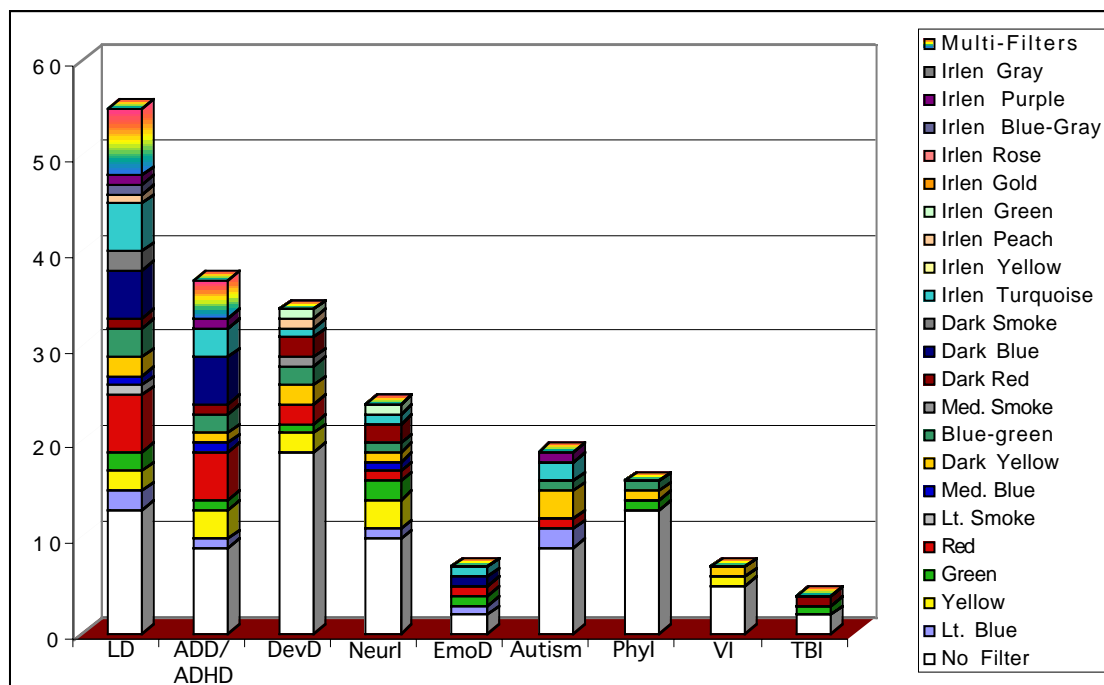
# Color and Technology

## Using Color On and Off the Computer with Students with Disabilities

The use of color in reading and copying tasks has been debated for decades. Color filters, such as the Irlen filters and filter sets by NRSI and See It Right!, are low tech assistive technology tools which may help students with a variety of different disabilities see the text more accurately, focus for longer periods of time, and copy more accurately. (This is often part of a condition called Scotopic Sensitivity Syndrome.) The filters are placed over the text for reading or copying tasks; and when they work, the results can be amazing. Children report that “letters stop moving,” that the “fuzzy letters are gone,” or that they can actually “see the spaces” between words. In other cases, students attend to the task for longer periods of time, claim much less eye strain, or show immediate improvements in their handwriting when copying.

However, with the advent of the computer, we are now able to take low tech color use onto the computer. There the color options are suddenly tripled. We can vary the background colors like the plastic color filters do on paper, but we can also change text and highlighting colors. In some cases, actual programs allow the user to change these screen colors (for example, *Write OutLoud*, *MathPad*, *Access to Math*, *Ultimate Reader*). This allows us to place complementary or contrasting colors right next to each other and work with the effects of using three different colors rather than just changing the background color and continuing to work with black letters. In other cases, we can actually place the colored plastic filters over the computer screen when the program doesn't offer color background options.

This presentation features the data collection from my work with 148 students over the past 2 1/2 years. Results from screenings and evaluations and ultimate use of color indicate a number of interesting findings. Some of these findings suggest that:



*The chart on the right indicates which filter colors (if any) students with different disabilities chose. In some cases, students choices are included in multiple columns because of multiple diagnoses.*

- Students with Learning Disabilities and/or ADD/ADHD overwhelming chose filters and colors for computer use.
- Students with Language Based Learning Disabilities who often carry the label of Dyslexia (without an ADD/ADHD component) chose blue filters (36%) or green filters (19%) most often.
- Students with ADD/ADHD often pick much more intense colors on the computer than they do with the filters, and they are more concerned with the combination of colors (text - background - highlighting) on the computer, often choosing high contrast colors such as bright pink and lime green.
- Students with Developmental Delays generally chose filters less than half the time, but 75% of these students end up using the color red on the computer as either a background, text, or highlighting color.
- Students with physical disabilities least often chose color filters.
- Students who have a diagnosis that falls within the Autism spectrum (including PDD), only chose a color filter about 50% of the time. However, on the computer they often prefer blue backgrounds and/or monochromatic color schemes.
- Students who have visual impairments either chose no filter or yellow filters. However, when they go to the computer, almost all of them use the yellow for text set against dark navy or black backgrounds.
- Children who need very specific filter colors (created by using a combination of several filters) often carry a diagnosis of ADD/ADHD and/or Learning Disabilities. These students are also most insistent on getting the color on the computer screen “exactly right” and may change it as classroom lighting situations change.
- Students who insist on reading in dark or lights-off situations all chose the darkest blue filters for reading.
- Students with behavioral or emotional problems tended to choose darker filter colors.

## **References:**

See It Right Evaluation Kit • [www.seeitright.com](http://www.seeitright.com) • 909-481-2950

NRSI (National Reading Styles Institute) • [www.nrsi.com](http://www.nrsi.com) • 800-331-3117

Irlen Institute • (213) 496-2550

*Reading by the Colors* by Helen Irlen,

*The Learning Brain* by Eric Jensen

*Visual Perception* by Vicki Bruce and Patrick Green