

Science and Digital Briefs

By Shopper Editor Dave Bunting

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Color: RGB vs CMYK

RGB color is the colors we see on our phones and computer screens. RGB devices have ways to make the individual pixels on our screen create R (Red), G (Green) or B (Blue) color for our eyes to see. All colors of the rainbow are then made by combining various percentages these three colors.

CMYK color is the colors we see on a printed page. The paper has run through a series of printer rollers, one of which is loaded with C (Cyan or blue) ink, the next roller has M (Magenta or red), another has Y (Yellow) ink and the last has K (Black) ink. Again, all colors are made by combining various percentages of these four colors.

The two ways of creating color are very different:

In RGB turning all three colors off leaves black, the color of our screen when it is off. Turning all three R, B and G colors to 100% on makes white.

In CMYK turning all four colors off leaves white, the color of the paper with no ink. Turning all four colors to 100% on prints black.

As you can see, converting RGB images into CMYK images is not at all straightforward.

The image we produce for each page of the Shopper must be separated into four images, one for C or blue ink, one for M or red ink, one for Y yellow ink and one for K black ink.

Each of these four color images is made into a separate printing plate at our printer, the Wenatchee World, whom we greatly appreciate!

Each plate is an aluminum sheet that is "printed" in a special printer. The sheets are made with a special coating that, quite magically, picks up the ink from its color roller where that color is to be printed on the page but picks up no ink where that color is not to be printed. Then the inked plate is rolled against the paper printing that color's part of the image. The plates look all essentially the same aluminum color but if you look at each closely you can see the slightly different image on it.

Each plate is mounted on its roller in the press.

Then the paper first runs through the C (blue) color unit rollers which contain the C blue ink in a 30-inch-long v-shaped "bucket" from which a roller picks up the ink and rolls it against the plate where the C blue image picks up the C ink and applies it to the paper. Then the paper runs ahead on through the M color unit, then the Y color unit and finally the K black press unit.

Much effort and technology are required to make the colors print at the precise position on the page so they match up with the other colors. This is called "Registration".

Printing a paper even as small as the Shopper requires many press units each of which prints all four colors on certain pages with additional other similar press units printing other pages. It also requires very specially trained and experienced press men and women.

We build images on our computer screens which use RGB color. Then our computers or the printer's computers must convert those RGB colors to CMYK colors to control printing by each of the separate color printing plates.

To convert RGB color image to CMYK color, there are many conversion methods, each producing a bit different printed image. The way the printer operates its presses also affects the printed colors.

The Shopper has lately been concerned that our printed colors are much less brilliant than they were on our screen. We are trying to learn how to make our printed colors more brilliant.

Part of our effort is the ColorMark registration marks you see in the paper. The C, M, Y and K colors you see in the mark are each 100% of the colors and we seek to make all of our colors also 100% where the image calls for 100%, which is not happening now on most images.



We are testing various RGB to CMYK conversion methods to find the method that brings you the best color.

Watch for our progress!



College being pitched to students

Image: Erika Schultz, The Seattle Times

Why aren't more of our students going to college?

Enrollment plummets at Washington's colleges, especially among men.

In 2019, Washington created one of the most generous college financial aid programs in the country.

By all rights, the state's colleges should have seen a rush of applicants. Instead, enrollment plummeted. Community and technical colleges experienced a combined 24% drop between fall 2019 and fall 2021. Public four-year institutions saw a collective drop in undergraduates of nearly 7% during that time period, with some schools' losses double or even triple that. Roughly 60,000 fewer students, in all, enrolled.

What happened, of course, was COVID-19, though education leaders are still untangling the reasons the pandemic kept students away. As colleges scramble for ways to boost their numbers, they are facing hard truths about higher education in this state — namely, lukewarm enthusiasm and a gender gap that has women outnumbering men at virtually every institution.

What also happened, well before COVID, was the appearance everywhere of metal-building schools without high tuition, manicured lawns and huge old masonry buildings, and without highly paid pedigreed professors. In a few months instead of years, these schools train students for jobs that earn almost the same high income as academic graduates.

At Lower Columbia College in Longview, for instance, the share of male students fell from 31% to 28% during the first year of the pandemic.

"We were a little stunned," said Lower Columbia President Chris Bailey.

The pandemic-caused drop in college enrollment is happening at universities across the nation, and so too is the gender gap, although it began developing decades before COVID showed up. Yet, Washington's issues with college seem to run deeper.

Within 14 years after graduating from high school, those who get a bachelor's degree or higher earn on average \$24,000 more a year than those who don't, according to state data. An associate degree or career certificate offers a \$4,000 bump.

Partly excerpted from [The Seattle Times](#) by Nina Shapiro.

Info: shpr.fyi/studentscollege

WE CAN HELP Ukrainians with charitable donations:

Food, medical, etc. help:

Ukraine Red Cross:

shpr.fyi/ukraineredcross

Samaritans Purse:

shpr.fyi/samaritanpurse

Mercy Corps:

mercycorps.org/donate

Military help:

war.ukraine.ua/donate/

Check out this week's Bible Readings on page 6 which includes, "Jesus answered, 'I did tell you, but you do not believe. The miracles I do in my Father's name speak for me, but you do not believe because you are not my sheep.'

'My sheep listen to my voice; I know them, and they follow me.'"

John 10: 25-27 NIV

Dave Bunting, May 1, 2022
Credits in links below items.
See these columns on my blog
daverant.com

