

University of California Tableau User Group (TUG)

Hosted by:

UCOP Institutional Research & Academic Planning
1-12-18

Agenda

- Welcome & Introductions
- A Neat Functionality
 - Linear Storyboard – Joey Van Matre – **15 minutes**
- Feedback on a viz in development
 - Creating Sankey Diagrams in Tableau – Joey Van Matre – **15 minutes**
- Useful Design Best Practice
 - Color Theory – Darin Jensen – **15 minutes**
- Questions – **15 minutes**
- Next Meeting



A Neat Functionality

Linear Storyboard Example

UNIVERSITY OF CALIFORNIA 1949-2019

Admissions Jobs Contact

NEWS INITIATIVES UC SYSTEM SUPPORT UC

UC System > Infocenter > UC's contribution to California

UC's contribution to California

UC awards a large share of all degrees in California

Graduate students conduct critically important research

New California startup companies use UC technology

UC's partnerships and community programs serve

UC bolsters the California economy

UC awards a considerable share of all bachelors and graduate degrees in California, with a total of about 1.2 million living alumni in the state. UC awards a majority of California's STEM (Science, Technology, Engineering and Math) bachelors and doctoral degrees. Twenty-three percent of Cal State faculty have UC graduate degrees. Awarded degrees shown below reflect the 2013-14 academic year.

Bachelors (B.A., B.S.) share awarded by UC

Life Sciences	57%
Physical Sciences	52%
Social Sciences	39%
Engineering & Computer Science	37%
Arts & Humanities	22%
Business	10%
Health Science (non-med)	7%
Education	0%

STEM Non-STEM

Professional Masters and Practice share awarded by UC (M.D., M.Arch., J.D., M.B.A., Pharm.D., D.D.S., M.P.P., etc.)

Medicine	81%
Architecture	34%
Law	23%
Business	15%
Health Science (non-med)	14%
Public Admin	7%
Education	7%

Academic Masters (M.A., M.S., etc.) share awarded by UC

Physical Sciences	41%
Life Sciences	39%
Engineering & Computer Science	28%
Arts & Humanities	13%
Social Sciences	12%

Doctorates (Ph.D., Ed.D., etc) share awarded by UC

Life Sciences	30%
Physical Sciences	20%
Arts & Humanities	55%
Engineering & Computer Science	55%
Law	52%
Social Sciences	33%
Health Science (non-med)	28%
Education	25%
Business	13%

Degrees by UC campus

Berkeley	8,429
Davis	8,169
Irvine	7,458
Los Angeles	11,389
Merced	1,054
Riverside	5,300
San Diego	7,228
San Francisco	829
Santa Barbara	5,110
Santa Cruz	4,124

Share of California Degrees by Institution Group

Bachelor	27%	47%	26%
Professional Masters and Pr.	14%	22%	65%
Academic Masters	16%	28%	55%
Doctorate	54%	21%	44%

UC CA State U Private

UC's share of California health professional degrees

Dentistry	29%
Medicine	83%
Nursing	17%
Optometry	25%
Pharmacy	19%
Public Health	37%
Veterinary Med	55%

Source: IPEDS (Integrated Postsecondary Education Data System), U.S. Department of Education. Not all disciplines shown on left.



UNIVERSITY OF CALIFORNIA 1949-2019

Admissions Jobs Contact

NEWS INITIATIVES UC SYSTEM SUPPORT UC

UC System > Infocenter > UC Leads the Way in Enrollment and Six Year Graduation of Pell Grant Recipients

UC Leads the Way in Enrollment and Six Year Graduation of Pell Grant Recipients

Pell Grants are federal grants awarded to low-income undergraduate students. The number of Pell Grant recipients is often used as a convenient proxy for low-income students. In 2017, the U.S. Department of Education released Pell Grant recipient outcomes for the first time, reflecting the entering 2010 cohort of full-time, first-time degree-seeking undergraduates.

UC campuses compare favorably in both the share of Pell grant recipients enrolled and those students' six year graduation rates when compared to American Association of Universities (AAU) member schools, California State University (CSU) campuses and a selection of other large state university systems.

- 42% of all UC first-time degree-seeking students in the 2010 cohort were Pell Grant recipients, compared to 22% at non-UC AAU public institutions and 16% at AAU Private institutions.
- 81% of the 2010 cohort of first-time degree-seeking Pell Grant recipient students at UC graduated in six years, while 86% of non-Pell recipients graduated.
- No CSU or AAU school had both a higher percentage of Pell enrollees and a higher Pell graduation rate than any UC campus.

There is a clear negative association between the percentage of Pell Grant recipients that a university enrolls and the percentage of Pell Grant recipients that graduate within six years of enrollment. While UC campuses follow this same pattern, they consistently have better outcomes than other universities that enroll a similar percentage of Pell grant recipients. On average, AAU public universities have the highest six year graduation rates for Pell Grant recipients, but the lowest enrollment rates. The University of Southern California, for example, had the highest Pell Grant enrollment rate at 24% in 2010, lower than the lowest enrollment rate at a UC campus, 27% at UC Berkeley. On average, non-UC AAU public schools enrolled and graduated fewer Pell Grant recipients, 22% and 72% respectively, relative to UC's 42% and 81%, respectively. Although CSU enrolled a slightly higher percentage, 44%, of Pell Grant recipients than UC, their six year Pell graduation rate is much lower than UC's at 54%.

Pell Enrollment vs. Pell Graduation Rates UC, CSU and AAU

School Type

- UC
- CSU
- AAU Public
- AAU Private

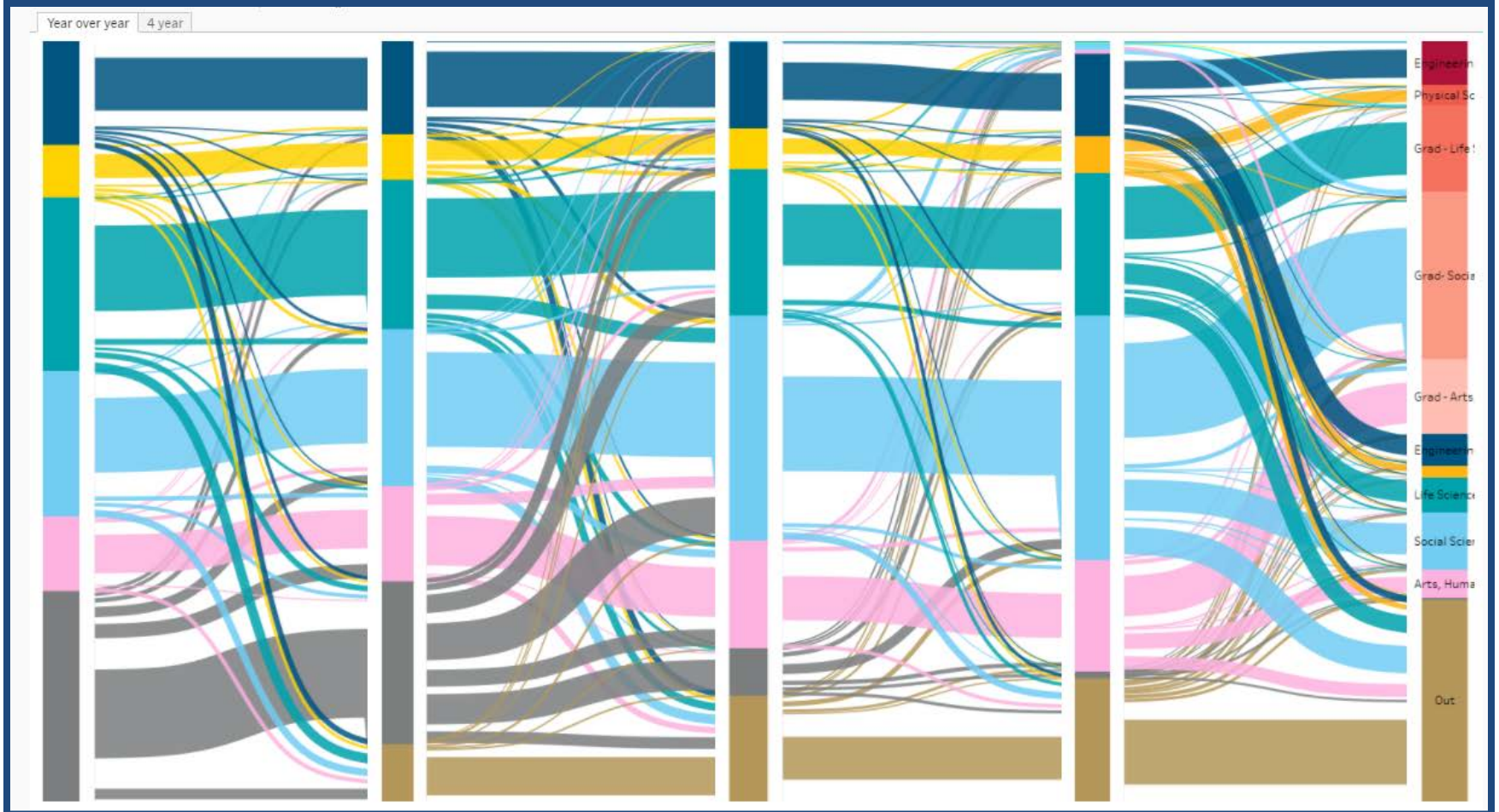
2010 New Freshmen Enrollment

- 151
- 2,000
- 4,000
- 6,000
- 8,233



Feedback – Viz in Development

Creating Sankey Diagrams Using Tableau



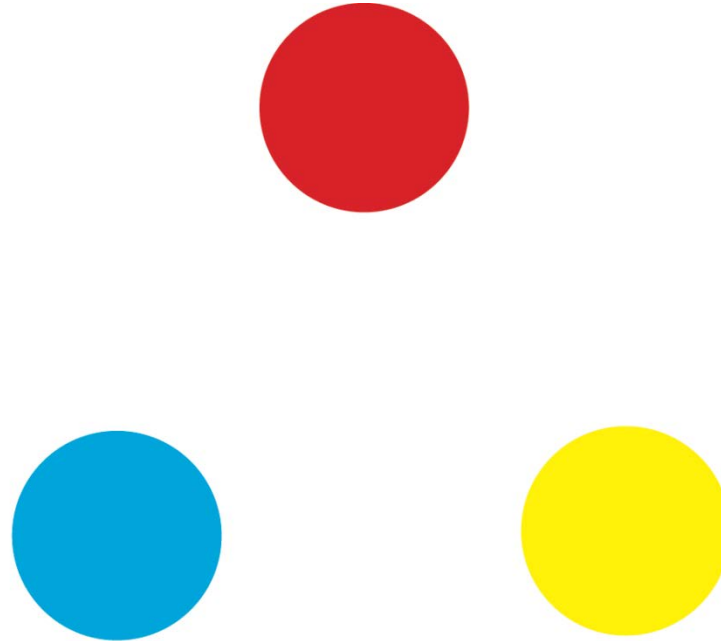


Best Practice

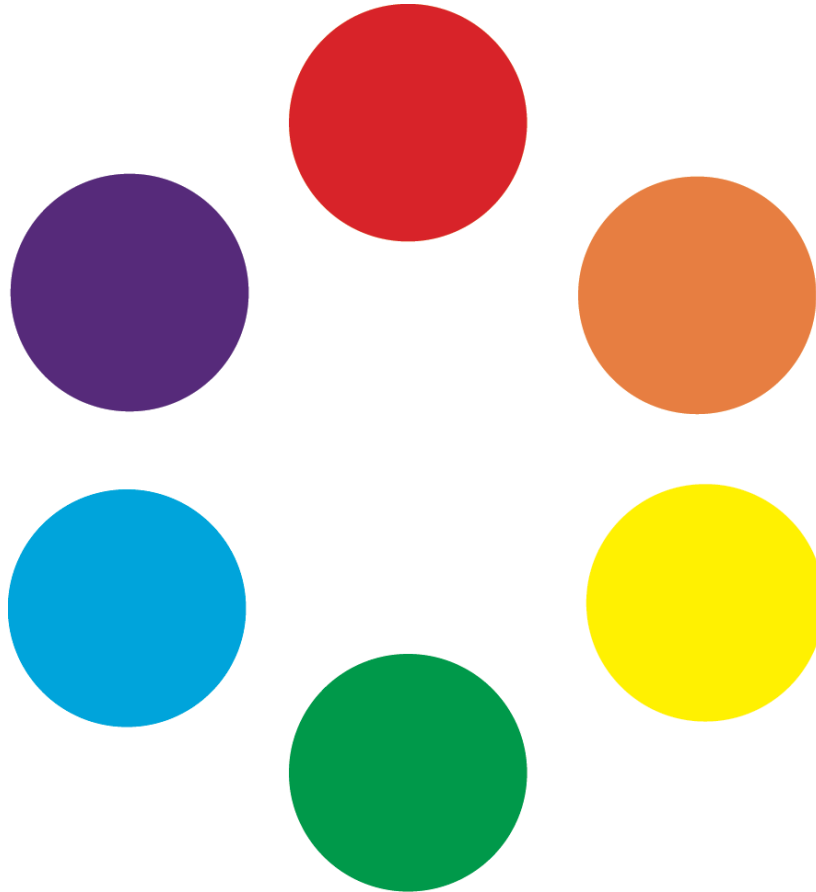
Best Practice – Color Theory



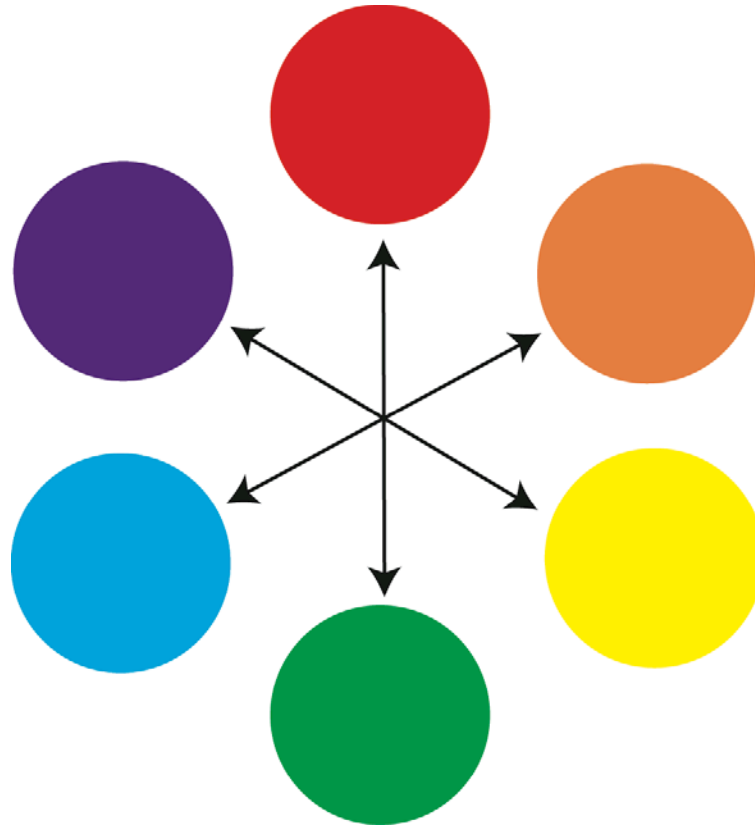
Primary Colors



Primary & Secondary Colors



Complimentary Colors



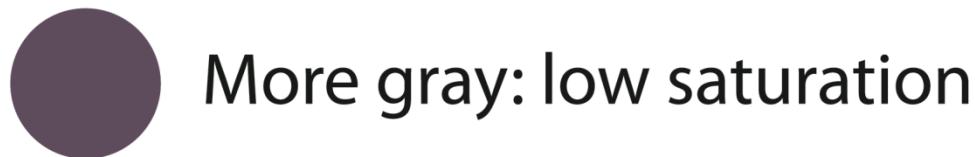
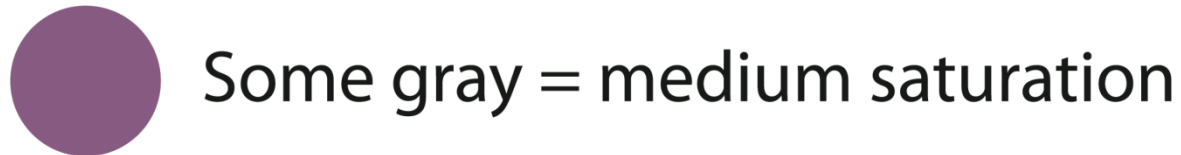
Hue: A Color on the Spectrum



Color Saturation: How Much Gray is Added to a Hue



Saturation: how much gray is added to hue



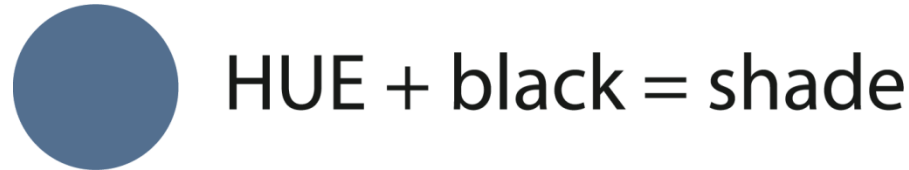
Color Value: Quality of lightness & darkness



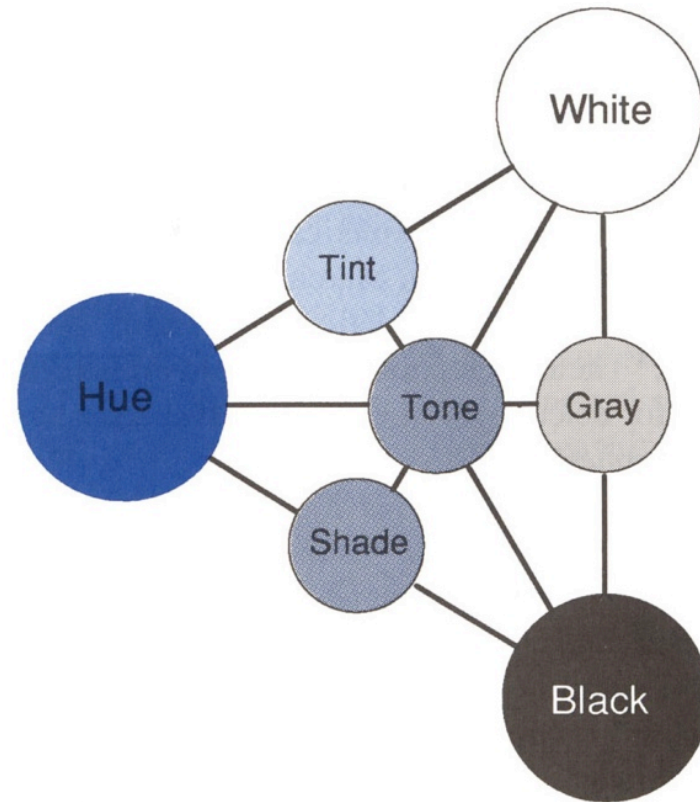
High value →



Low value →



Color Value: Quality of lightness & darkness



As sensation, all colors fall into one of these seven forms.

Devised by Faber Birren

Dent. Cartography: Thematic Map Design, 5th ed.

Function of Color in Dashboard Design



**Used as a
simplifying
and clarifying
agent**

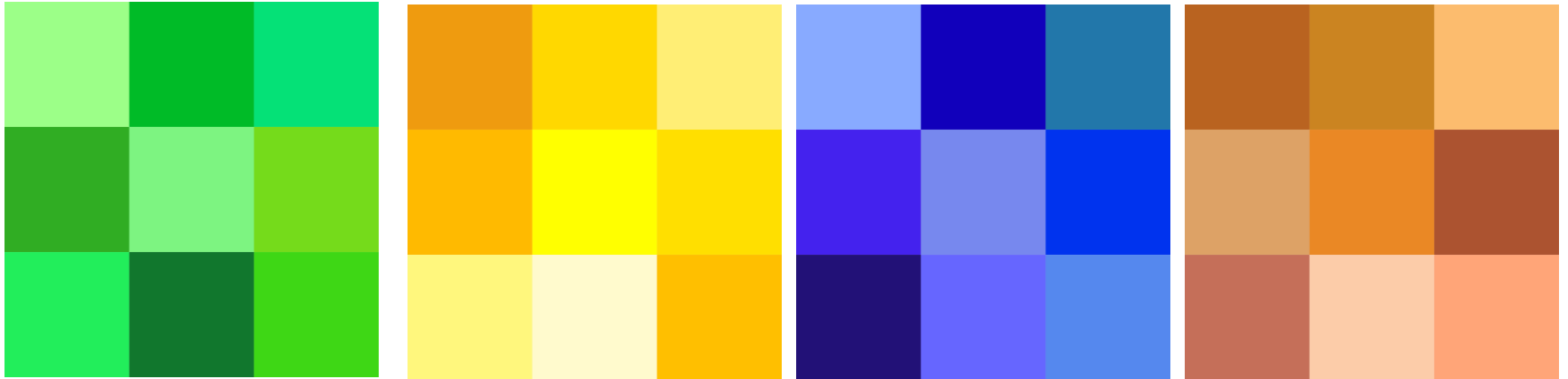


**Used for
categorizing**



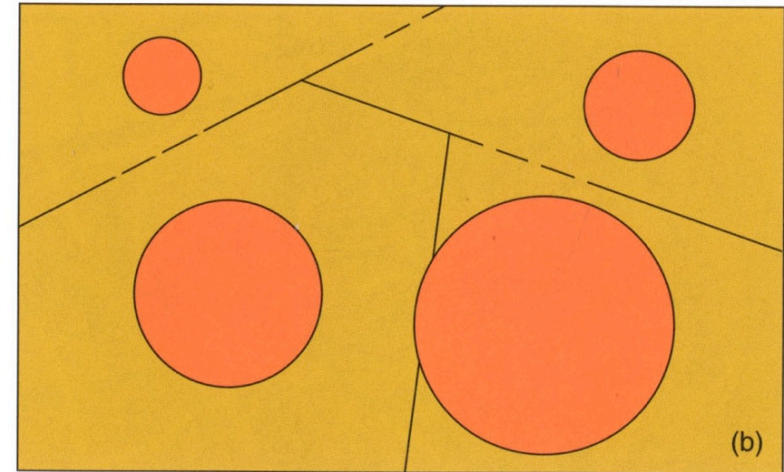
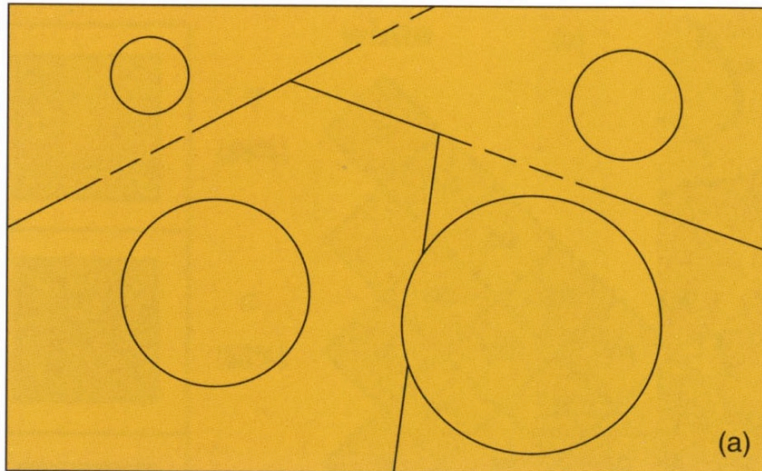
**Elicits subjective
reaction and
emotional
response**

Color Discrimination



Color discrimination is a perception - a construct of the mind. Color is a sensing and cognitive process between the eye and the brain.

Color Use: Establish figure & ground contrast



Cognitive ability to separate elements based on contrast – dark or light. When we look at something we separate out a foreground, or figure, and a background, or ground. The foreground is usually the main subject on which we will subsequently focus, whilst the background is generally ignored.

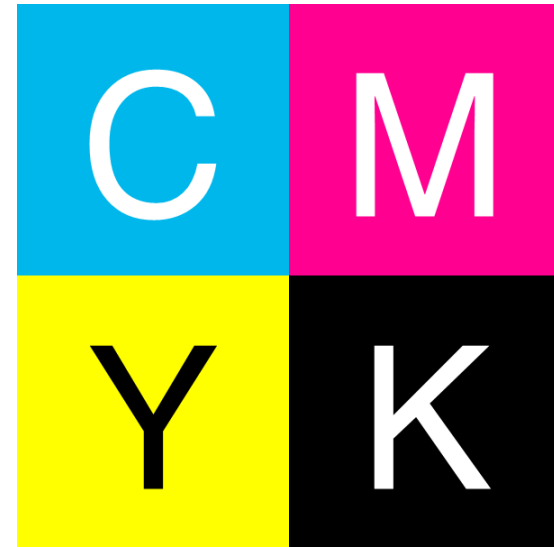
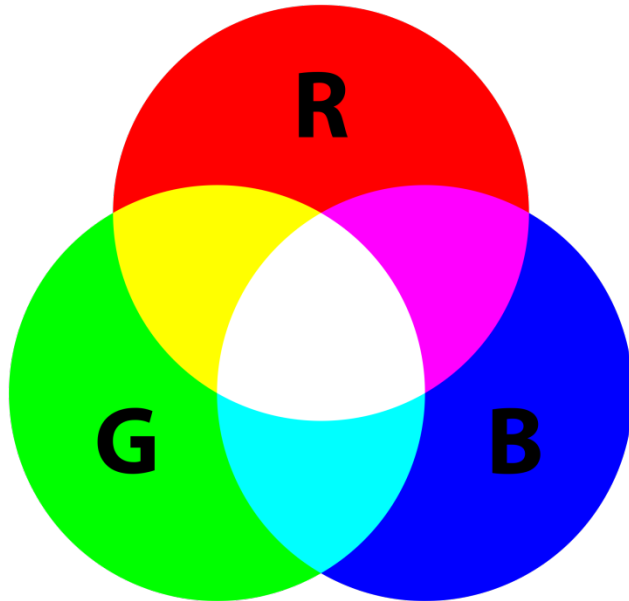
Color Use: Receding & Advancing Colors



Advancing Colors: warm colors (red/violet, red, red/orange, orange, yellow/orange, yellow). They appear to come towards you.

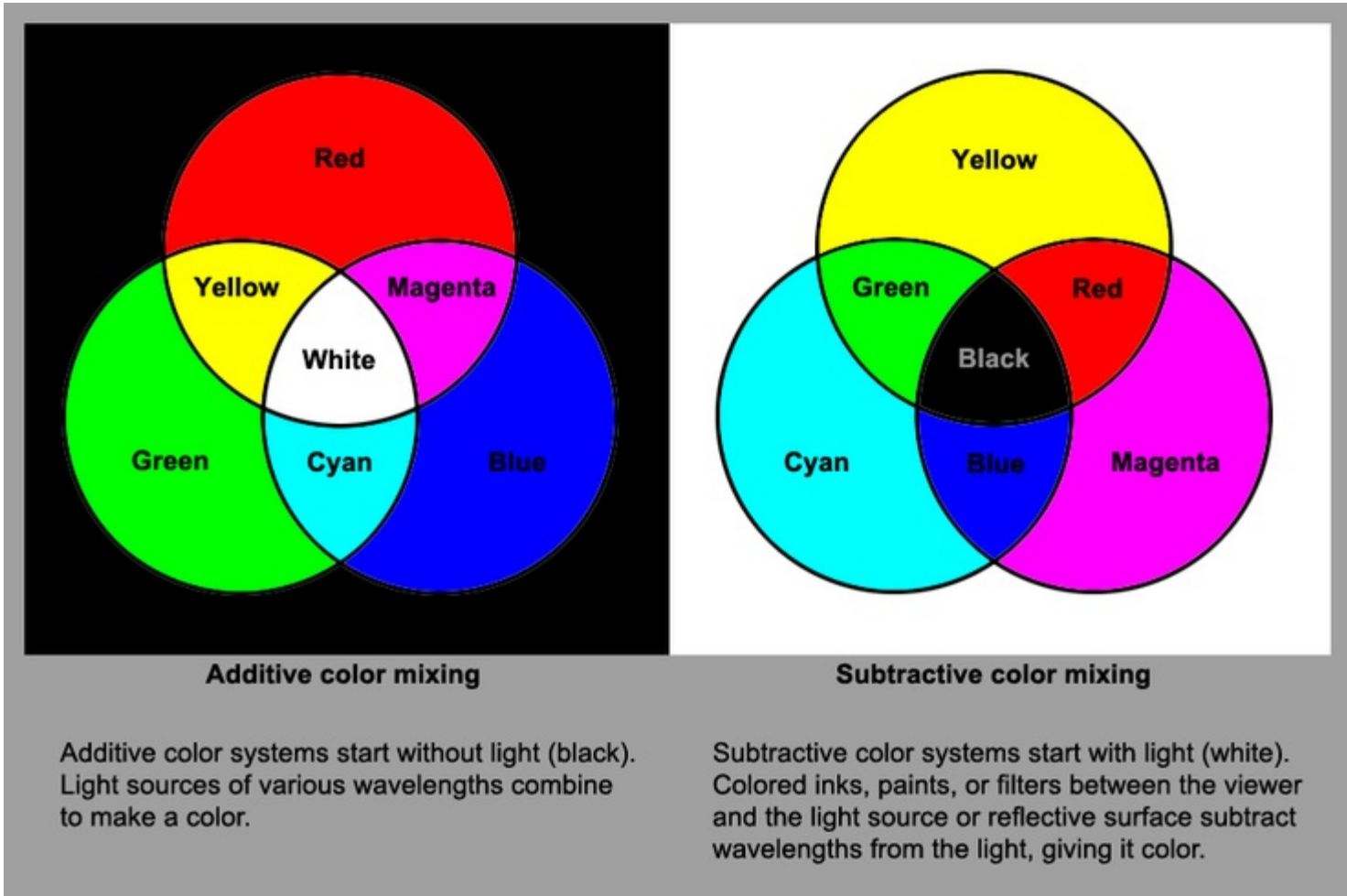
Receding Colors: cool colors (green, blue/green, blue, blue/violet). They appear to go away from you.

Color Use: RGB or CMYK?

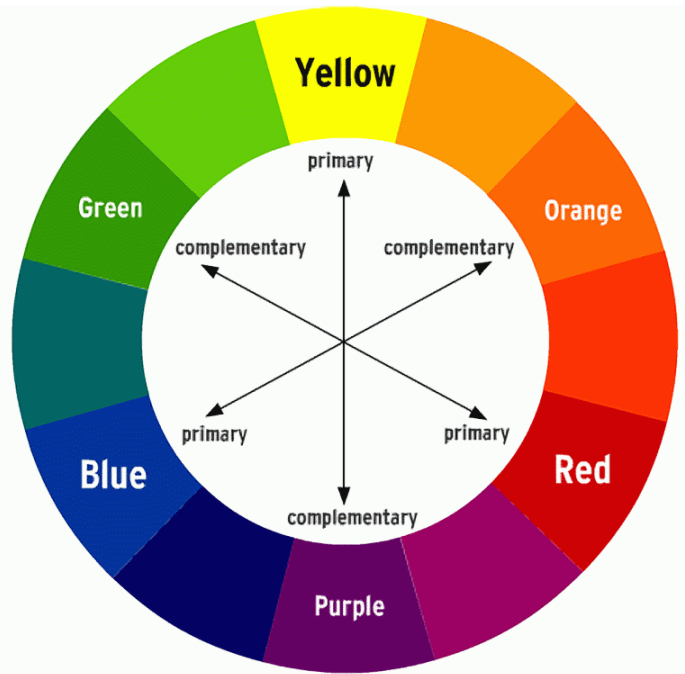


As a designer, it is essential to know when to use RGB vs CMYK. A good rule of thumb is anything dealing with the web should always be in RGB and printed material should be in CMYK.

Color Mixing: Additive & Subtractive



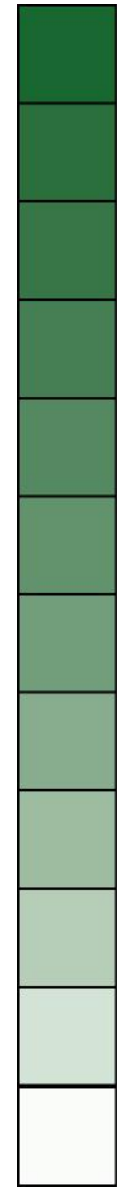
Conventions – Qualitative & Quantitative



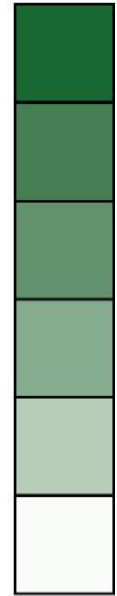
- Blue: cool phenomena and air
- Red and orange: extreme or warm phenomena
- Brown: desiccated and earthen features
- Green: money and growth (extension of flourishing)
- Color saturation or intensity gradations are used to
 - denote data values.
 - High intensity or saturation equals high data value

Color Frequency

Too many divisions



Highest value



lowest value

Useful Links

- ❑ **Data Science Webinar** - Best Practices for Using Color in Data Visualizations: <https://www.tableau.com/learn/webinars/best-practices-using-color-data-visualizations-how-and-why>
- ❑ **Tableau Essentials: Formatting Tips – Color:** <https://www.interworks.com/blog/ccapitula/2015/02/12/tableau-essentials-formatting-tips-color>
- ❑ **Tableau Visual Analysis Best Practices:** <http://www.dataplusscience.com/files/visual-analysis-guidebook.pdf>
- ❑ **Sankey Diagram in Tableau:** <https://www.youtube.com/watch?v=1HwCzIA9hI4>
- ❑ **Tableau Reference Guide** - <http://www.tableaureferenceguide.com/> (everything from graphing, color and mapping to calculations and server administration)
- ❑ **Embedding Tableau Views into Webpages:** <https://onlinehelp.tableau.com/current/pro/desktop/en-us/embed.html>



Next Meeting

- Friday, February 9th 2018
- Presentation by UCOP Procurement