

I. Communicating about Color

A. One of the most difficult physical phenomenon to specify, describe, or purchase

1. technical causes

- a) object
- b) light source

2. human causes

- a) physiological
- b) psychological

B. Color communication can be accomplished through numbers, a physical sample, or words.

- 1. However, the human factors make it a somewhat mysterious process.*

II. Communication networks involved in color communication

A. Creative process decision making—what the client wants

B. Manufacturing process decision making—what the process can accomplish

C. Networks overlap when the print buyer has to make decisions about materials and processes that suit cost restraints.

III. The Creative Process Network—use overhead

A. The requirements of a color reproduction are subject to constant modification during the reproduction process

- 1. due to infinite variety of originals and large number of printing systems that could be utilized.*
- 2. Due to these constant modifications, frequent communication about color during the reproduction process is essential.*

B. Art director

1. *conceives of the color concept for a particular job*
2. *may be the individual to make all color approvals throughout the process.*

C. Artist or photographer

1. *Listens to art director and translates art director's idea into a tangible image.*
2. *Image subject to approval by inspector (art director)*
3. *Art director must be aware of the characteristics of films and art materials to know if the artist's or photographer's image matches the original concept.*

D. Color preparation

1. *Altering the original through photographic or manual techniques*
 - a) *airbrushing*
 - b) *dodging, burning, etc.*
2. *Product of this stage is known as a color duplicate.*
3. *Image subject to approval by art director*

E. Color separation

1. *image changed into CMYK mode—gamuts altered as well*
2. *considers characteristics of original as well as the characteristics of the reproduction process*
3. *color proof is made for approval process*
4. *The color proof is the key decision-making image in the process.*
 - a) *separation negatives too difficult to evaluate*
 - b) *inspector needs to understand characteristics of the proofing system.*

F. Color retouching

1. *make changes to separation negatives suggested by inspecting the proof.*
2. *electronic or manual means*
3. *new proof made*
 - a) *inspector needs to understand characteristics of the proofing system.*

G. Color printing

1. *Match the proof*
2. *Make specific changes on press*
3. *Inspector needs to understand characteristics of the printing process.*

IV. The Manufacturing Conditions Network—use overhead

A. Information about the original copy as well as the reproduction process must be fed into the separation process.

B. Proof images are not part of the manufacturing process—the are used only to make decisions about the process—so they are indicated with dotted lines.

C. Original copy

1. *brand and type of color film must be supplied to separator (color balance)*
2. *area(s) of interest (highlights, midtones, shadows, specific color) must be communicated to separator.*

D. Duplicate of original copy

1. *new (altered) transparency from original*
2. *characteristics of the new film are also important*

E. Prepress—we've already covered all this

F. Printing

1. results of the process must be fed back into the separation process.

V. Linking the Creative Process Network and the Manufacturing Conditions Network—use overhead

A. Technical factors must be communicated to the creative decision makers

B. Aesthetic factors must be communicated to manufacturing system

C. Noise results when different languages are spoken.

VI. Objective aspects of color communication

A. Light source—already been covered

1. transparencies and reflective proofs should be lighted with the same temperature light source.

B. Proof or other color reference

1. Proof

a) There may be multiple proofs

(1) each proof should be marked first, second, and so on

(2) final proof should be marked "OK" and signed by the client

b) type of proof (overlay, single-sheet, etc.)

(1) impacts the predictive power of the proof.

(2) should have samples of the same job proofed with varying systems and printed on varying stocks to show clients

(a) should also have color charts on each type of proof and several types of paper

2. *Color originals*
 - a) There may be multiple color originals—they should also be marked
3. *Color charts*
 - a) CMYK color charts are not universal color references
 - (1) *depend on ink, paper, process, and press used to print the chart*
 - (2) *unless the chart was printed in-house (Foss) with the same variables as the current job, the chart should not be assumed to be completely accurate*
 - b) Pantone books
 - (1) *become old, damaged, smudged, and faded*
 - (2) *should be replaced annually*

C. Anomalous color vision

1. *Printers' employees should be given color tests.*
2. *You can't really test clients, however*
3. *You can infer that a client has color deficiency problems by the way that client describes problems with proofs—if your own people have been tested and have good color vision.*

D. Surround and Environmental effects

1. *walls and ceilings = flat neutral gray*
2. *surround effects—make sure original and proof have same surroundings (such as a flat neutral background)*

VII. Subjective Aspects of Communication

A. More emotional than rational and are more difficult to identify and correct.

B. Personality factors

1. *pickiness—*

- a) some clients approve color that is “close enough” while others want absolute precision
 - b) influencing factors are age, gender, education, social class, nationality, psychological profile, etc.
 - (1) *intuitive–feeling*
 - (2) *sensing–thinking*
 - (3) *introversion–extroversion*
2. *perception of quality level varies from person to person, but there is a high level of agreement between people as to what constitutes a “high-quality” vs. “low-quality” job.*
 3. *The same person may evaluate the same proof differently at different times. The decision as to whether the job is “high-quality” or “low quality” does not change much, however.*
 4. *The evaluation of the reproduction depends on the observer’s bias for or against the subject matter*
 - a) people are more critical of images of persons or things they really like

C. Verbal communication

1. *people use subjective terms for colors: sky blue, Mandarin red, eggshell green, electric blue, etc.*
2. *when evaluating proofs, people use terms such as: (what do they mean?)*
 - a) make the reds talk to me
 - b) flesh needs weight and color
 - c) it’s got to be livelier
 - d) make it bluer
 - e) too muddy
 - f) make it brighter
 - g) make it cooler

- h) I want drama in this color
- 3. *what would you assume and do for each of these points?*

D. Other forms of communication

- 1. *sometimes people say things like “increase the yellow 10%.”*
 - a) does this mean make a 50% dot into a 60% dot or make a 50% dot into a 55% dot?
 - b) does it mean the whole page, or just the area in question
 - c) increasing yellow 10% will make little or no difference in most photographs
- 2. *Color proofreaders’ marks (use overhead and handout of Hamlyn symbols)*

VIII. Improving Color Communication

A. Measuring instruments

- 1. *Spectrophotometers*
 - a) measure ink and pigment colors
 - b) result is a curve (of which we are familiar)
- 2. *Colorimeters*
 - a) color measurement of paper, ink, and printing
 - b) existing machines need a large sample (1/2” diameter), so current application only in printing large solids.
- 3. *Densitometers*
- 4. *Problem with instruments is that the buyer will probably not understand what the numbers mean—what is important is how the job looks.*

B. Physical samples—such as color charts and Pantone Books—allow all concerned to talk about the same color.

C. The GATF Color Communicator (show sample—pg. 302 of Fields)

1. *device with wedges of percentages of each process color on overlay proofing material*
2. *place the Communicator over the substrate and move the wedges until the correct color is found*
3. *record the correct screen percentages*
4. *suffers from density increase—as do all overlay proofing systems*

D. Terms to specify changes in color

1. *Hue—use only these terms—make it*
 - a) bluer
 - b) greener
 - c) yellower
 - d) redder
2. *Saturation—use only these terms—make it*
 - a) cleaner (more saturated)
 - b) grayer (less saturated)
3. *Lightness—use only these terms—make it*
 - a) lighter
 - b) darker
4. *A specific area may need to have more than one dimension altered: “make it bluer and cleaner.”*

E. Specifying amount of color change

1. *Use color proofreaders’ marks*

2. *Use GATF Color Communicator to specify the desired CMYK percentages*
 - a) alternative is to use color charts (remember to take variables into account)
3. *If you can't use #2 above, describe changes verbally using only the following terms*
 - a) slight
 - b) moderate
 - c) substantial
4. *A verbal description might be "make sky slightly cleaner and moderately darker."*
 - a) this would mean to increase saturation a small amount and decrease the lightness a larger amount
5. *Unintended side-effects*
 - a) reducing cyan in green shifts color toward yellow, but also increases saturation (removing some of the red component removes some gray, thus increasing saturation) and alters the lightness, too.
 - b) Some requested color changes are impossible to achieve.
 - (1) *If a red contains no cyan or black, it is impossible to increase its saturation.*

F. Use of specification forms—a single form, accompanying the original, should specify (some parts filled out by client, some by printer)

1. *required size*
2. *crop area*
3. *transparency brand and type*
4. *important tonal area (highlight, midtone, or shadow (no more than two))*
5. *areas of color change (indicate on Xerox copy)*

6. *retouching requirements*
7. *printing process*
8. *ink and paper brand and type*
9. *color sequence*
10. *amount of UCR or GCR*
11. *screen ruling*
12. *dot shape*
13. *printing densities*
14. *dot gain at 50% level*

IX. Psychology of Color Approval

A. “Who is right” vs. “what is reasonable”

1. *the customer is always right*
2. *however, the customer may want something that is not reasonable considering the process variables and the imposed cost restraints.*

B. Potential pitfalls in the print-buyer and sales representative relationship

1. *age difference*
2. *gender (m-m, f-f, m-f, f-m)*
3. *relative social class (including style of speaking and dress)*
4. *status or rank in the respective business*
5. *years of graphics experience, including graphics education*
6. *personality differences*
 - a) *intuitive-feeling client : “It doesn’t do anything to me!”*
 - b) *sensing-thinking seller: “Do you want us to increase the magenta 3%?”*

7. *location of inspection process (buyer's or seller's office or neutral place)*
8. *inspection of proof before or after lunch (is lunch on the seller?)*
9. *other people around while proof is being discussed (someone may be trying to impress someone)*
10. *role of buyer is that of a critic—if they find no fault, they have not done their job!*

C. Reasonableness

1. *result of a dialog between buyer and seller*
2. *both buyer and seller should be educated with regard to what is possible*
 - a) both buyers and sellers should attend training programs, seminars, college courses, etc.
3. *seller, in particular, needs to know how communicate his/her knowledge to the buyer*
 - a) the seller needs to be able to communicate, for instance, that a 2 1/2% increase in yellow is unreasonable because such an amount cannot be effectively measured and the change won't be noticed, anyway.
 - b) the seller needs examples of the same job proofed with all the proofing systems the provider uses and printed on representative stocks. The seller should be able to explain the flaws in each proof type.
4. *if a reasonable proof is provided to the customer, the printer/seperator should provide reasonable minor corrections as part of the base price, but major changes (called "author's alterations") are billed to the client.*
5. *if an unreasonable proof is provided to the customer, the printer/seperator must pay for the corrections and reproof.*
6. *reasonableness depends to a great extent on whether the buyer and seller wish to continue doing business together*
 - a) it is in the best interest of the printer to develop a symbiotic (cooperative) relationship with the buyer to prevent minor disagreements from becoming unreasonable demands

b) a printer may “win the battle” but “lose the war.”