

Companion Excerpts

AGAINST THE CLOCK
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A Brief History of Visual Communication

Some of the earliest existing examples of written communication have been preserved in the pictographic writings (or hieroglyphics) of ancient Egypt. Messages were carved into stone tablets, written on papyrus scrolls, and in many cases carved on tomb walls. The media used for communicating evolved over time — the earliest rock carvings and paintings gave way to writing on animal skins, clay tablets, vellum, fine papyrus; eventually these evolved into the high-quality papers (and low-quality newsprint) that we use today.

For thousands of years, documents were painstakingly written and copied by hand, character by character. In those days, the rule for writing was straightforward — the words simply had to be captured accurately. Many people who could “write” could not, in fact, read the words; they merely reproduced the shapes of the letters on a page.

Illumination

For a largely illiterate culture, communication relied heavily on word of mouth. Alternatively, information — histories, legal codes, and religious ideas — could be spread through the use of images. Stories were told through pictures — woven into tapestries, painted on walls, drawn on vellum. These forms of storytelling predate any realistic means of mass production, yet color figures prominently in most surviving examples. Of course it's impossible to make a 700-page painting, so events had to be condensed into symbolic images. In fact, color was not only added for aesthetic effect, but assisted the storyteller in communicating more complex ideas through symbolism. A person wearing blue, for example,

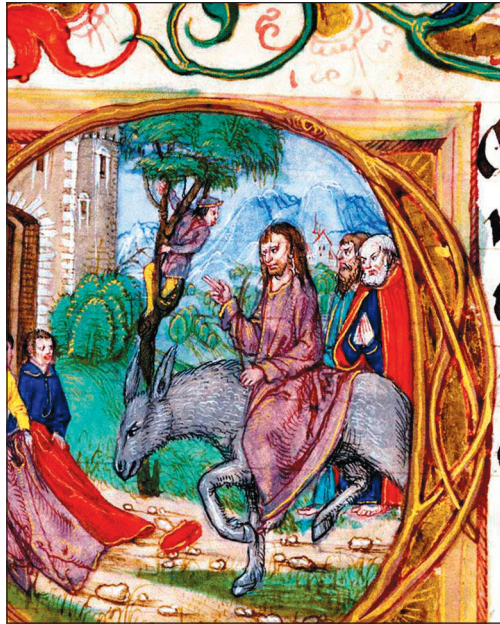


The lavish use of color — especially in some of the funerary writings on papyrus — is believed to be an indication of the power and popularity of the person who was buried in a specific tomb.

symbolized a member of a religious group; anyone wearing red was of noble birth; those wearing purple were most likely royalty.

Medieval documents give us many very sophisticated examples of this type of visual communication. Illuminations, or the beautiful colored illustrations we find in documents that survive from the medieval period, were added by artistically talented monks to embellish the hand-written pages.

Because every copy of a document was hand-written, the cost of owning printed material was prohibitive for all but the extremely wealthy. In those early societies, written language was often limited to the priests and scribes, who became the writers and readers of the written word. Most of the aristocracy was, in fact, illiterate, relying instead upon the clerics to record and communicate information. While we applaud the skills of these early publishers, we also note that these people had great power as the sole writers and readers of the recorded word. They acted as spokespeople and interpreters for the gods and rulers of that society, thereby controlling public belief, policy, and opinion.



Many documents were embellished by hand illumination, which represented important stories in a visual and often colorful depiction.

Automating the Publishing Process

A revolution occurred in the mid-1400s that would eventually make wide-scale publishing a reality. In 1450, Johannes Gutenberg changed forever the way people communicate when he invented a printing press that used movable metal type, making it easier to make multiple copies of documents. The process involved manually coating metal castings of type with ink, and then pressing those plates against the paper with a lever or screw, creating an imprint of the plate on the paper. Modern printing was born. Documents would become public because they could be produced in sufficient quantity to be distributed to large groups of people, and could be afforded by those other than the very wealthy.

Gutenberg's invention, despite its impact on the way we communicate, effectively removed color from most documents. Some early printed documents were still illuminated by hand, but the time-consuming process defeated the purpose of being able to quickly reproduce multiple copies; illumination eventually devolved into a lost art. Images, when they were included in printed documents, were engraved into metal blocks and printed in black ink.

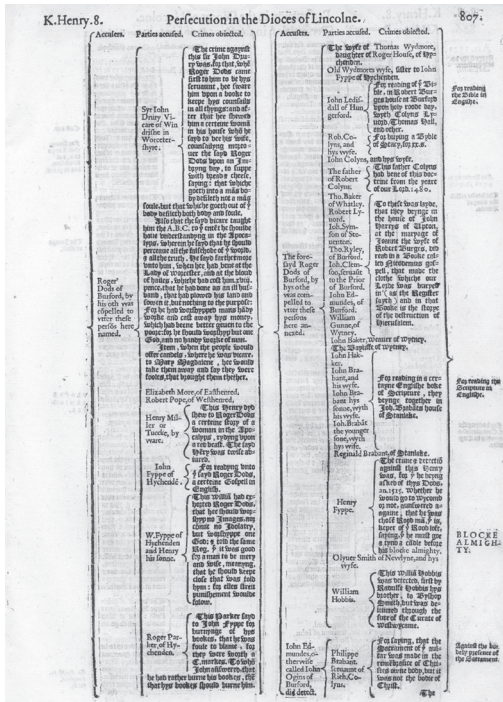
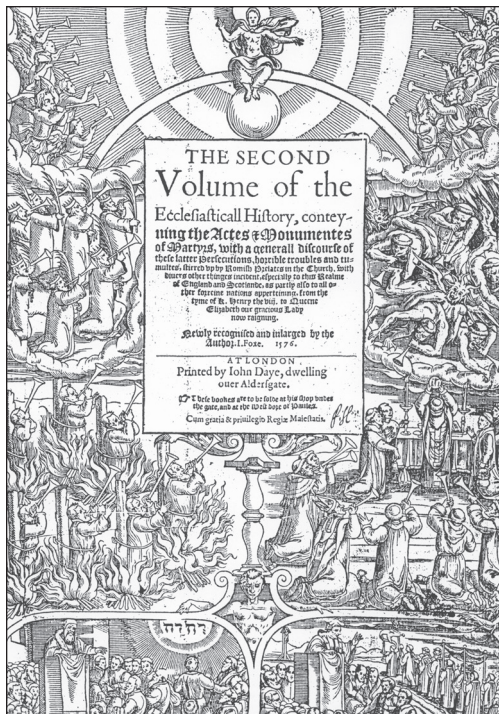


Historical records suggest that the Koreans were printing with movable type fifty years prior to Gutenberg, but he is still credited with the invention.

Printing allowed easier and (comparatively) more affordable access to written documents, which in turn allowed literacy to flourish; the allegorical embroidery and paintings that were once the only way to relay information to an illiterate populace eventually became forms of art rather than communication.

Although the basic concept of printing — ink applied to a raised surface, then literally pressed onto paper — would not change over the next few centuries, a number of improvements were made to the original approach. In 1710, Jakob Le Blon developed a three-color printing process that finally allowed the mechanical reproduction of color. Later in the same century, Alois Senefelder would experiment with different methods of printing, eventually inventing lithography around 1798.

Throughout the nineteenth and early twentieth centuries, printing rapidly evolved into the processes we still use today. In 1855, Alphonse-Louis Poitevin invented photolithography using the principles that were simultaneously evolving into photography as we know it. The halftone process, which is still used to print photographs, was developed at the same time so photographs could be easily reproduced as part of the printing process. In 1893, process-color printing was successfully introduced, leading the way to printing color photographs in the early twentieth century.



The often-intricate engravings that were added to printed documents were reproduced only in black. The right image shows the more common appearance of a printed page, which included only text and the occasional line.

Photography

The birth of modern photography is historically credited to Louis Daguerre. The daguerreotype method, introduced in 1839, worked by exposing a silver plate to iodine vapors. The chemical reaction resulted in a light-sensitive layer of silver iodide on the plate, which was exposed to light in a camera. After exposure, the silver plate was exposed to mercury vapor and the unexposed silver iodide was removed from the plate with a salt solution to create the image.

At the same time Daguerre was exposing silver plates, William Henry Fox Talbot invented the calotype (from the Greek “kalos,” meaning beautiful). This process used paper treated with silver iodide, which was exposed with a camera and



Daguerreotypes (above) and tintypes (right) were two early forms of photography. These photos were not retouched, to show how the early photographs can darken over time.

developed in gallic acid. A negative image was captured on the treated paper, which was then transferred to a second special paper to create the positive image. Talbot's photographs did not have the same quality as those produced with the daguerreotype method, largely due to the quality and graininess of the paper used for capturing negatives. The concept of the calotype, however, would eventually lead to photography as we know it, where multiple prints are made from a single negative film image.

Throughout the nineteenth century, numerous improvements were made to these early versions of photography. In 1848, Claude Felix Abel Niepce de Saint-Victor discovered that albumen, a protein found in egg whites, allowed light-sensitive chemicals to develop on a glass plate instead of the paper used in Talbot's original invention. In 1851, Frederick Scott Archer replaced the albumen used on glass plates with collodion (cellulose nitrate, the same explosive substance that later made moving pictures so dangerous). The plates had to be exposed and developed while the plate coating was still wet, hence the process was called "wet-plate photography."

The wet-plate process was very popular with some professional photographers, but was limited because of the need to develop exposed plates while they were wet. In 1871, Richard Maddox replaced the collodion with a gelatin substance that did not require the immediate exposure of the wet-plate process. John Corbitt invented a cellulose photographic film in 1887 to replace plates. George Eastman introduced roll film and the first Kodak camera in 1888; the film was sent — still in the camera — to be developed.

COLOR PHOTOGRAPHY

Physicist James Clerk Maxwell began experimenting with color photography in 1855. The first color photograph was produced by photographing the same image three times through a series of red, green, and blue filters. The three distinct images were turned into slides and projected through three different projectors using the appropriate color filters. When the three projected images were focused and registered to one another, the result was a full-color image.

In 1869, Arthur-Louis Ducos du Hauron described the subtractive color method, which changed the direction of color photography. Ducos du Hauron suggested film could be coated with three layers of emulsion that were each sensitive to a different primary color. After the negatives were processed, the technique would produce a full-color positive transparency. Ducos du Hauron's theories, however, would not be practically applied for many years because the emulsions used during his lifetime were not sensitive enough to the green and red areas of the spectrum. Panchromatic film, sensitive enough to capture all areas of the color spectrum, was developed around the turn of the century.

Ducos du Hauron's contributions to color photography also included the Helio Chromatic camera, which captured three separate negatives inside a camera with a single exposure. This type of photograph was able to reproduce the full range of colors, but still required the combination of three separate images to create the single color composite.

In 1873 John Joly developed a system that was able to capture color in a single image, using a screen of microscopic red, green, and blue stripes placed in front of a black-and-white plate. Using this process, a single negative could be developed into a positive image and projected in color.

Louis and Auguste Lumière introduced the Autochrome process in 1904, which replaced Joly's striped screen with color dots made of red, green, and blue potato starch particles. In 1907, the Lumière brothers introduced the Autochrome photographic plate, which is considered to be the first commercially successful color photographic plate. In 1914, Agfa replaced the starch particles used in the Autochrome plates with colored resin particles. Agfa began marketing the new plates in 1916 and further refined the process in 1923.



Early photographs were often hand painted to add color.

The most significant change in color photography began in 1912 when experiments generated dyes within the film emulsion during the development process instead of after the film or plates were developed. The main difficulty with this dye-coupling technique was the tendency of the dyes to bleed into the other emulsion layers, which caused color shifts and bad results.

After experimenting with different methods for three-emulsion film, Leopold Mannes and Leopold Godowsky (working for Kodak Research Laboratories) abandoned the idea of isolating dyes to specific emulsion layers, and researched the possibility of using coloring agents in developing solutions. Kodak introduced the first modern, three-emulsion color film, Kodachrome, in 1935. The Kodachrome development process was so complicated, however, that only a few labs were able to support the film.

Gustav Wilmanns and Wilhelm Schneider, who had begun the experiments with dye-coupling film for Agfa, finally overcame the dye-migration problem, enabling Agfa to introduce Agfacolor Neu in 1936. This became the foundation for all modern film-based photographic processes. (Kodak introduced the competitive Ektacolor film in 1941.)

Color in Motion

As photography evolved into a commercially viable method for capturing still images, pioneers in the industry worked to expand the concept to capture motion. The invention of flexible cellulose film for photography also allowed experimentation to begin with film-based motion-picture photography.

Motion pictures became a commercial reality in 1891, when William Dickson ran strips of George Eastman's 35-mm cellulose film through Thomas Edison's Kinetograph camera. In 1896, the first movies in the United States — one-minute shorts — were projected through a Vitascope projector.

The earliest film-based motion pictures were dangerous exhibitions. The cellulose nitrate film was projected through hydrogen-oxygen burning lamps, hand-cranked at 16 frames per second, creating a potentially explosive combination. Safety film (cellulose acetate) was developed in 1908 and a motor was added to the projector in 1915, allowing longer motion pictures to be developed.

By the 1920s, motion pictures had become the primary form of entertainment in the world. The film industry soon began to experiment with color, producing spectacular results that changed the future of the entertainment industry.

IN LIVING COLOR

A variety of color processes had been used for motion pictures since 1896. In 1915, Herbert Kalmus established Technicolor Corporation, which fused together projections from a red filter and a blue-green filter to create full color on the screen. *The Gulf Between*, shown in 1917, was the first film to use the additive color process; it was not terribly successful because the projectionist had to be able to carefully register the two projections on the screen.

The Technicolor process would change at least three times in fifteen years, until the three-color imbibation process was developed in 1932. A special camera simultaneously captured images on red, green, and blue film rolls, which were later fused together into a single print. This method was adopted by Disney, which used the Technicolor process for the animated *Flowers and Trees* in 1932. The first non-animated three-color film, *La Cucaracha* (a short), appeared in 1934. The following year, *Becky Sharp* became the first feature-length non-animated color motion picture.



An early Autochrome photograph. If you look closely, you can see the starch particles.



*A frame from *The Blooming Desert*, using the three-color Technicolor process.*

Despite the pioneering developments, the Technicolor process was largely relegated to animated projects such as *Snow White and the Seven Dwarfs* (1937) and big-budget productions like *Gone with the Wind* (1939) because the cumbersome Technicolor camera weighed more than 500 pounds and required a substantial amount of light to get proper exposure.

Kodak's Eastmancolor print process — which placed layers of colored dyes on a single strip of film — ended Technicolor's monopoly on the color market in the early 1950s. By 1955, half of the films released used Eastmancolor, which would also be the basis for processes such as Warnercolor, Color by De Luxe, and Metrocolor.

Conclusion

Color has been an integral part of visual communication for millennia. Long before we even conceived of televisions or digital cameras, color was used to convey ideas such as rank, religion, and identity. In comparison, color reproduction has a relatively short history, but one that continues to change with the introduction of new technology. Color communication, whether in print or on screen, is a diverse and constantly evolving process. Understanding both the aesthetic and technical use of color is key to effectively communicating the messages you create as a designer. The rest of this book examines the different aspects of color that will affect your work.

CHAPTER 1

A Hard Look at Creativity

A long-delayed question is, how does it happen that very young children, all of whom quite naturally absorb great quantities of visual information, grow up to be visually illiterate? The answer, as far as I can make out, is that this early capability is simply beaten out of them by the educational process.

—GEORGE NELSON, *HOW TO SEE*, LITTLE, BROWN: BOSTON, 1977

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Walter Gropius (leader of the Bauhaus) in a treatise on the role of an artist in the age of the Industrial Revolution, stated: "...for the artist possesses the ability to breathe soul into the lifeless product of the machine, and his creative powers continue to live within it as a long ferment. His collaboration is not a luxury, not a pleasing adjunct; it must become an indispensable component of the total output of modern industry."

Getting the Idea

Graphic design is the process of solving a problem visually. How can you communicate the intended message with one (or a few) image, delivered in a limited space, without lengthy contextual explanation? The goal of graphic design is not to come up with the prettiest, funniest, or most colorful picture. Rather, the goal graphic design is to create a visual solution to a communication problem.

When a graphic designer is hired, it is usually to design a specific piece of commercial artwork. A brochure is needed, or a company needs a logo, or an advertisement is needed to promote a product — all of these projects have obvious purposes. A graphic designer does more than simply decorate. Design is decidedly goal-driven; it is always a purposeful endeavor, with a clear outcome fixed in the front of the designer's mind.

People generally assume that brilliant graphic design is a matter of being able to draw better than the average person. Graphic design, however, is not necessarily the result of artistic talent. The most overlooked factor in graphic design is the ability to come up with a good, solid idea. All the fancy software in the world cannot save a poorly conceived idea. Design and composition skills can be taught. But can concept development be taught?

The answer is yes, graphic design most definitely can be taught. Not in the same way that mechanical skills are taught; there is no formula that guarantees a brilliant design solution every time. There is, however, a method — a systematic approach to the design process, which, if used consistently, produces solid answers to design problems.

A designer does not arrive at a visual solution through happenstance. Many people, when given a design job, rush right to the final step — producing the piece. In their haste to produce a tangible finished ad, brochure, or report, they gallop right into production with scarcely a thought to the work of concept development. They have a hazy idea of what the piece is going to say, they have a vague idea of the layout, the type treatment, and the visual elements, but they assume that the issues will work themselves out as they are encountered in the production process.

It seems obvious to include your client in the process, but designers have a bad tendency to spring their plans, full-blown, on clients. Clients are always more receptive to innovative solutions if they feel they have had some input. This *does not* mean to allow your clients to design — designing is your job. You will, at some point in your career, encounter a client who thinks they know exactly what they want, you only need to draw it. This is the *worst* situation you can be in, since the client's ideas aren't always the most effective communication solutions. It's your job to convince clients to let you do your job. Encourage your clients' input, ask them what they think the problem is, who their competition is, what look or style they might want, and if they have any data or information that will help you to create an effective design.

The design process should always begin with a clear idea of the problem that needs solving. This seems obvious, but it is a huge stumbling block in the creation of a successful design.

The next logical step in the design process should be to choose the best media for the job. Again, this seems obvious, but it is ironic how many times a designer has been hired to create a brochure, when a magazine or newspaper ad was the proper vehicle for the visual solution.

Do not wait for creativity. A professional creates best to deadlines because deadlines force the use of tested methods for generating ideas. Over time, we each work out our own personal style. The Concept section of this book has some great suggestions for beginning the process. After brainstorming ideas, test ideas for practicality, usability, budget constraints, and production difficulties. Check in with your client after this step for encouragement, feedback, and participation.

Successful design is much more than something that looks nice. Success is judged by a much more concrete criteria than that which we use to evaluate personal art. A successful designer is more than a skilled artist. We are, first and foremost,

informed visual problem solvers. Evaluate your design ideas based on the following criteria:

- Does the idea answer a specific problem or goal?
- Is the idea creative and original?
- Is the idea an appropriate treatment for the intended media?
- Will the idea work within the budget?
- Is the idea appropriate for both the client and the target audience?
- Is the idea appropriate for the intended message?
- Is your client happy with the idea?

If you have a poorly visualized, poorly planned design, the results can range from merely ineffective to catastrophic. Graphic design is largely a matter of discipline, rather than wildly unbridled talent. The first section of this book is dedicated to supporting this point by providing a variety of time-tested methods for idea generation. It deals with the misconceptions about achieving creative results, and suggests ways that you can train yourself to think creatively.

The Five Forces of Creativity

Five forces enable creativity:

Inspiration, motivation, frustration, intuition, and curiosity

How do you get a great idea? Does it come to you fully developed? Does it just sort of smack you between the eyes, in bright glowing colors? You're lucky if this happens to you more than a few times in your life. For most of us, the creative process starts not by a lucky quirk of inspiration, but with one of the four other major forces which help to stimulate ideas.

Motivation is a drive to attain a goal, reach a solution, or find an answer. Design, in general, is goal-driven, since we are usually trying to meet a deadline. Motivation is a compelling force, and can be a powerful tool for a self-disciplined person. This person has a great stubbornness and a willingness to plough through the design process to reach a goal.

Frustration (however unlikely this may seem) can be a great help in creative problem-solving. Frustration creates great energy, which can be refocused into a driving force. Frustration can also help to force reorganization, dividing design problems into more workable chunks. Many creative people do their best work when frustrated.

Have you ever had a hunch? You "just knew" the answer. This is the subconscious at work. People who get hunches are tapping into that huge library of stored data in their heads. Intuition is not a predictable source of creativity, but the results can be brilliant.

The final force behind creativity is curiosity. People sometimes prefer to stay comfortably in a state of ignorance; resist this kind of complacency. Get in the habit of

asking questions. Try to ask unusual questions, inappropriate questions, silly questions. Think outside of the box, and welcome answers from outside the box.

Becoming Creative

Webster defines *creative* as “resulting from originality of thought or expression.” Following this definition, everyone is by nature a creative person. We all have the ability to come up with an original thought or expression. As children we are encouraged to let our imaginations run wild. Somewhere along the way, we are expected to Grow Up. The key to being truly creative is to get out of your own way. “Thinking outside of the box”—thinking about things differently than the average person would is a designer’s mantra.

Following are some suggestions for keeping your inner child alive:

- Be curious
- Be open-minded
- Be strongly purposeful
- Be ready at all times to be inspired
- Think improbable thoughts
- Don’t be serious all the time
- Make puns
- Juxtapose ideas and imagery
- Use metaphors
- Discard no idea, no matter how absurd
- Generate many answers — the more, the better!
- Know that inspiration is a controllable element

CREATIVITY IS NOT A TALENT

Look at the above list. Notice that the word “talent” is not mentioned once. Being creative does not require a particular talent. Talent is a gift, more closely aligned with potential; talent is a matter of nature.

Creativity, however, is a product of nurture. To be a creative person, treat yourself as a creative person. It is not enough to simply *think* of yourself as creative; rather, do the things that creative people do. Act as if you are a creative person; allow yourself to respond in the way you would allow a creative person to respond. Once you get into the habit of acting creatively, you’ll notice that eventually this kind of response doesn’t have to be forced.

One of the joys of being a creative person is that other people come to expect the unexpected. Be flamboyant, be outrageous, be unusual, be irreverent, be anything you want to be. There are very few rules to creativity. The only one is to never settle for something less than creativity.

Tips for Fueling Creatively

STAND ON YOUR HEAD

Or hula-hoop, or play hopscotch, or ride a dirt bike. Most designers have some kind of instrument that sparks the creative fires. Whether it is yoga, baking, singing at the top of your lungs, dancing with your cat, or listening to a particular kind of music, experiment to find what helps you work. You might find that your best work comes from standing on your head in the corner. Do it! No matter how strange it may seem to other people, harness whatever you like to be creative.

THE INSPIRATION FILE

Practically every designer (graphic designer, clothes designer, architect, chef, or hair stylist) shares a common denominator — they all have a folder, file drawer, cabinet, or scrapbook of inspiring things. Whether it's called a sourcebook, idea book, inspiration file, or something else, designers are avid collectors of things that inspire their creativity.

Simply having an inspiration file will help fuel your creativity since you are paying more attention to what you see. While you are looking for things to collect, you're opening yourself to a wider range of visual cues by paying attention to what you may have overlooked in the course of everyday life. You can also use your inspiration file to jump-start your imagination if you hit a creative block.

One designer shared her inspiration file with us — it's a suitcase-sized portfolio box with acetate pages like a scrapbook, and room for loose items. Her inspiration file is filled with items that she picked up and thought were worth saving: feathers, seashells, bits of ribbon, pictures that “lured” her, comic books, postcards from Istanbul and Norway, a letter written in Japanese, ads she admired, matchbooks, and a cancelled postage stamp from the Arctic Circle.

Your inspiration file can contain anything—bits of fabric, illustrations, postcards, work you admire in your field, unusual visual solutions, visual jokes, scraps of paper with written notes, fragments of ideas you've had, rough sketches of designs, doodles. Anything that you might look at for more than a minute is usually a good candidate for your collection.

Something is worth saving if:

- It amuses you
- It amazes you
- You think it is pretty, beautiful, serene, soothing, etc.
- You find it disturbing, gross, haunting, scary, depressing, etc.
- The texture is intriguing
- You love the colors
- You wonder how it was made
- You know what is wrong with it, and how to make the design better

CHANGE YOUR PERSPECTIVE

Have you ever stared at your face in the mirror for so long that it no longer makes sense? When you are designing something, you probably sit in the same chair at the same desk in the same room every day. You will have the same sensory cues around you, the same pictures on the wall, the same air conditioner droning in the background... get the point?

Try moving to another place. Fresh design concepts may require fresh surroundings. Take your sketchbook outside, up to the roof, to a cafe, or to a subway or train station. Go somewhere you normally don't go to, and look at the world around you. Leave your preconceived ideas in your same old chair, and just watch. This will help you to develop a heightened awareness of the world around you, which will give your creativity a boost.

KNOW YOUR MARKET

One of the most important facets of design is to know who you are designing for. This does not mean the client, but the ultimate target for your design — or your *target market*. Demographics play a key role in determining what kind of design to use. A design that communicates well with a 16 to 25-year-old audience living in New York City will not be as effective if you are trying to communicate with 40 to 50-year-old housewives living in Alabama. Age, gender, nationality, economic status, and geographic region can all dictate some aspects of your design.

You are probably familiar with the concept of target audience, even if you don't realize it. Consider television. Certain shows appeal to different age groups; some shows are specifically designed to attract female viewers, while others are intended for men. Make a list of three or four shows that you watch, then list a few reasons why you like to watch them. This is a great way to determine what your own demographic group might find appealing. Of course this doesn't mean that every person who matches your demographic statistics will like the same things, but it is a good starting point.

To further illustrate the concept of target marketing, walk through any mall or shopping plaza. Which stores would you go in? Which stores do you never go to? Pick one of the stores you never go to, and sit outside of it for an hour, taking note of the people who do shop there. Do you notice anything that those people have in common? Are they primarily women or men? Do they seem to be the same age group? Nationality or race? Once you've got an idea of the shoppers' characteristics, go into the store and look around. What colors are predominant in the store's design? What kind and color of lighting is used? What do the fixtures look like? Are there any predominant shapes?

Research groups spend countless hours and dollars studying what appeals to different kinds of people... what colors, attitudes, layouts, and approaches most effectively communicate to certain demographic groups. If you have the opportunity, read a book or take a class on basic marketing concepts. Even if this isn't an option, there are a few basic questions that you can ask to help you on the path to an effective design solution. Look at your problem and try to determine who the client is trying to communicate with. Then ask:

- What are these people's interests?
- What motivates them?
- What would appeal to them?
- Who are their role models?

When you approach a design problem, try to put yourself into your audience's shoes. Most people are able to briefly think from another's perspective; the trick is to be that person a bit longer.

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