

Communication through Graphic Design

“We thrive in information-thick worlds because of our marvellous and everyday capacities to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense reduce, boil down, chose, categorize, catalog, classify, list, abstract, scan, look into, idealize, isolate, discriminate distinguish, screen pigeonhole, pick over, sort, integrate, blend, inspect, filter, lump, skip, smooth, chunk, average, approximate, cluster, aggregate, outline, summarize, itemize, review, dip into, flip through, browse, glance into, leaf through, skim, refine, enumerate, glean, synopsisize, winnow the wheat from the chaff, and separate the sheep from the goats.” (Tufte, 50).

What is communication?

Communication is “a variety of behaviors, processes, and technologies by which meaning is transmitted or derived from information.” (Strate). We continuously analyze the world around us and draw conclusions from it (looking out of my window I see snow which “tells” me that I have to dress warm when leaving the house), thus deriving information from what we find. Yet, the classical definition of communication describes the passing on of *information* — “Knowledge derived from study, experience, or instruction.” (American Heritage Dictionary) – and reasoning, I would like to add. Thus communication is based on information that is generated beforehand and then brought into a form (*encoding into symbols*) that allows it to be transmitted to one or more other persons. The receiving person then decodes the message and derives the meaning from the transmitted symbols.

One of the many graphs to describe this process is taken from Adler/Rodman, p. 13:

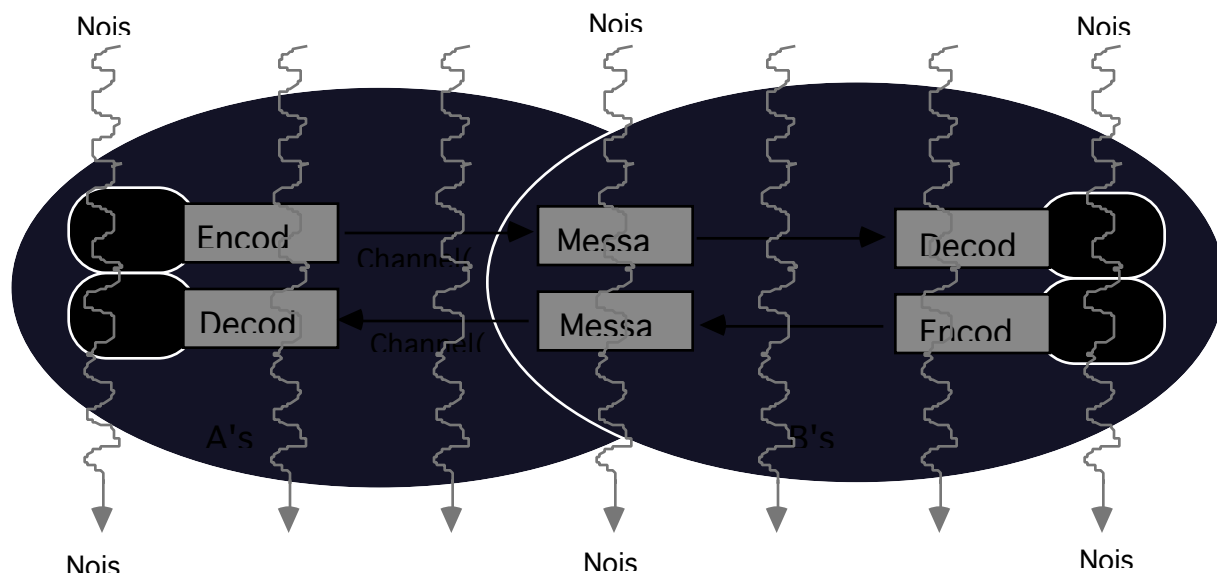


Figure 1

While the process of encoding, transmitting and decoding is simple in theory, it is complicated by *noise* – disturbances that subtract from effective communication, “other forces that interfere with the process” (op. cit. 14). Other determining factors are *shared environments*, because “it is through our shared knowledge and experiences that we are able to communicate” (op. cit. 13). Communication therefore is not only about the information that is transmitted but also the information we already have.

What is Graphic Design?

Today the field of applied design is generally divided into three areas. *Industrial design* deals with three-dimensional functional objects. Generally, everything we buy in a store has been designed with such concepts as simplicity, safety, efficiency and aesthetics in mind.

Environmental design is a general category that includes the design of buildings, landscapes, and interiors. The above mentioned criteria are applied in this field, too, shaping the macro context of our world.

Finally, *graphic design* deals with things people see and read. This includes books, magazines, posters, packaging material, signs, billboards, commercials as the traditional areas and in a growing amount the electronic counterparts of printed material (web pages, games, movies) (Arntson, 3 f.).

A Look into the History of Graphic Design

Whenever we have found human artifacts there have always been traces of graphical artwork, too. It seems there hasn't been a time in which humans did not produce graphical descriptions of their world or their beliefs, of concrete and (ra-

ther) abstract things. Elaborate cave paintings, as old as 15,000 B. C.^[1], display animals painted with great skill and detail (Gatta et al, 19). Much of what we know about ancient cultures is derived from graphic information on everyday articles like pots or from wall paintings. They served both *decorative* and *communicative* goals^[2]

Stained glass windows, icons, frescoes and statues served as teaching material for the common and usually illiterate people in Europe during the middle ages (and later). A common motif is Jesus' way to the cross, usually illustrated in twelve displays, or the theme of eternal judgement with saints entering heaven and sinners being thrown into hell.

Caricatures became one of the tools to spread and push the reformatory message of Martin Luther during the Reformation, utilizing Johannes Gutenberg's invention of the printing press (1452; Gatta et al, 24).

A new dynamic into graphical arts was introduced with the beginning of industrialization and the emerging consumerism. The thrust of industrialized production with the need to sell ever increasing numbers of product generated the demand for advertising. While advertising used to be strictly informational, it became more and more promotional in the late 19th century (Clapp 24), utilizing increasingly the powerful tools of graphic arts. This was aided by advancements in printing technology in the earlier part of the century. The development of *art nouveau* (1880s) is directly related to this process (Arntson 13). The Russian Revolu-

^[1] If one wants to follow the commonly used time table, based on an evolutionistic paradigm — which I don't do, but my argument concerning this topic cannot be part of this paper.

^[2] In Pompeii (a Roman city in southern Italy, destroyed 79 A.D.) I've seen paintings that show common scenes of everyday life, others that are decorative (pin-up girls in the living room) or convey religious beliefs (for example: Baby angels with wings, as they can be found in countless Catholic churches – only in a clearly pre-Christian context).

tion of 1917 had many Russian artists contribute in order to spread and promote the message of the revolution. This included the design of posters as well as advertisements and packaging of state products (Arntson 22 f.).

In 1922 William A. Dwiggins coined the term “graphic design,” which finally lead to the recognition of the discipline as a viable profession (Gatta et al, 18). Another defining element was the founding of the *Bauhaus* in Weimar, Germany, 1919, through Henry van de Velde and Walter Gropius. “The Bauhaus trained artists in all areas. It attempted to bridge the gap between pure and applied art and to place equal importance on all areas of arts and crafts. It stressed clean functional forms. The weavers, metalsmiths, and carpenters did not attempt to produce works of art, but rather good and useful designs.” (Arntson 25). The Bauhaus was closed by the Nazis in 1933 and many of the artists immigrated to the United States, where they spread their ideas of *good* (functional) design.

Another drastic change in the field was introduced with the emergence of computer technology in the 1970s. Muriel Cooper and others at the Massachusetts Institute of Technology (MIT) began to develop design tools on this new media, especially introducing the idea of artificial intelligence at the Visible Language Workshop (Arntson 30, Lieberman). In 1984 Apple introduced the Macintosh, a computer with a graphical user interface, designed to enhance and simplify communication between man and machine. Then scorned as a toy, the concept has now become the standard interface for computers^[3]. The Macintosh soon became one of the standard tools of graphic artists and is the power house that drives electronic design and publishing today.

^[3] Windows 95 finally introduced many of those ideas to a broader public on Wintel platforms.

...and there is more to come!

The 1990s introduced yet another major change that will be shaping the way we communicate in the next century. While in the 1980s computers were used to generate printed pages, the explosive development of the internet, especially the World Wide Web, have created a completely new media. Having been vastly text based, the Web is moving rapidly towards a graphic interface. Again, the Visible Language Workshop (VWL) played (and plays) a great role in exploring ways “to increase the amount of comprehensible information contained with a limited display space.” (Slivers). The enormous amount of (non-linear) information that needs to be handled demands a new kind of graphical interface. Apple Computers is currently researching on what it calls a “metacontent format” called HotSauce, that will allow moving through three-dimensional displays on the Web (Poole 141). This may sound very “techy,” but “it has worked well or us in nature for so long.” (Silver). It is based on the simple concept of focus: “If an object in a foreground plane is displayed razor-sharp over a blurred background, it will ‘pop’ out at you as if it is floating.” (Silver). Moving closer to the background sharpens the image and thus brings the viewer “close.”

The WWW will change the way we deal with information, and also the way graphic design is used in communicating. Dictated through the flexibility of the media is the need for dynamic design as well as automatic design. Much of this has been researched in the 1980s, but is becoming now silently part of computer interfaces^[4]. While in the past design has been done to be printed and then distributed, it

^[4] The latest version of Quicken, for example, offers the option of automatically formatting reports to the size of the printed page – whatever that may be. Web pages dynamically reflow to follow the window size on the viewer’s browser, whether it is on a 14” or a 21” screen.

will increasingly be distributed and then printed. Thus, new technical opportunities as well as obstacles are going to be introduced. “The design necessary for this medium is not a noun. It’s a verb.” (Richmond).

What is Design?

“Design cannot be eliminated.” (Arntson 4).

One possible definition of design is: “ The purposeful or inventive arrangement of parts or details.” (American Heritage Dictionary). For the realm of Graphic Design this means the arrangement of line, type, shape and texture under consideration of factors like balance, contrast, unity, value and color on a printed page or any other given media (Peterson 14 ff.).

Graphic Design is based on our visual perceptions. Yet, there is no all embracing, inclusive theory that includes all the aspects that go along with it (Arntson 34). Gestalt psychologists^[5] have investigated the way we process information from two-dimensional surfaces. One important element they discovered is the fact that the human mind interprets visual information in the simplest satisfactory way. Any mark on a page stimulates eye and thinking. For example, we finish uncompleted shapes (see fig. 2), group similar shapes, and



Figure 2

^[5] “Gestalt psychology was a movement in experimental psychology that originated just prior to World War I. It made significant contributions to the study of perception and problem solving. German researchers such as Kurt Koffka, Wolfgang Kohler, and Max Wertheimer began studying the ways in which percepts are determined by context, configuration, and meaning, rather than simply by the accumulation of separable sensory elements. (Gestalt is a German word that may be translated as "configuration.") The researchers also identified a number of new perceptual phenomena.” (Rehm)

distinguish between foreground and background on a flat page (which physically speaking is “flat”, thus has no *foreground* or *background*). “Any stimulus pattern tends to be seen as a structure as simple as conditions permit.” (Arntson 33).

We draw the analogies of our interpretations from our natural environment. This means, while an image on a flat surface could be interpreted/described in many possible ways, we “see” it in a very specific way. Figure 3 could be described as “three tilted rectangles with touching sides”. Yet, the simpler and natural interpretation is “a cube”. The information contained in the basic shapes (rectangles) *and* their combination is therefore bigger than just the sum of the shapes. The perceived three-dimensional information is *interpreted* into the two-dimensional display.

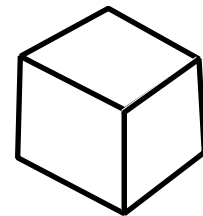


Figure 3

Another vital part of our interpretation of a flat page is the concept of “figure/background.” It is based on the principle that we see any mark on a page as an object distinct from its background. A figure is only visible to the extent that it is seen as separate from its background. This, again, is a principle that is deeply

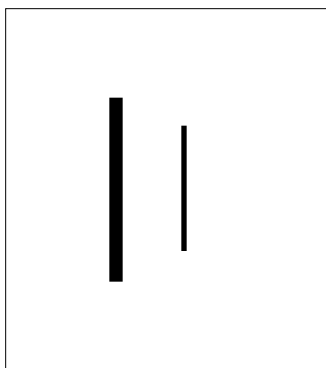


Figure 4
The line seen as “on top” of the white background; the thick line appears to be closer than the thin one.

rooted in the way we perceive our environment. In order to minimize the visual information that we see, we simplify/generalize the visual input according conceptual categories. We see a house, not an assembly of bricks, wood, metal frames, glass, etc. This is the basis for our ability to distinguish a person on a photograph (a collection of multi-shaped dots) from the mountains in the background (more

multi-shaped dots). In the same way we recognize and read words by organizing letters into a figure lying against a ground (Arntson 34). Through this handling of visual input it is possible to convey enormous amounts of information in a very condensed space by distributing it on conceptually and visually different levels. “Clutter and confusion are failures of design, not attributes of information.” (Tufte 51).

Communicational Aspects of Design

“We can’t not communicate.”^[6]

We return to the quote that opened the last section by considering that communication is inevitable, even if one decides to stay silent for the rest of his life (which in itself is an act of communication, q. e. d.). In the same way, design cannot be eliminated – that is, design (whether it is done consciously or not) inevitably communicates to the person exposed to it. As we have seen, we continuously interact with the visual input we get by interpreting it in conceptual categories. Our interpretation is determined by our past experience, our expectations and our cultural and personal background (Arntson 33). In this respect it is no different from other forms of communication.

But is Graphic design really communication? A closer look at the processes involved will clarify that. As we have seen in the first section of this paper, communication is based on encoding and decoding. This has been described in literal form as well as in visual form through figure 1. Both ways communicated the concept in

^[6] I don’t know exactly who is responsible for this statement (might be Paul Hiebert). It stems from Paul Strand’s Cultural Anthropology class.

different forms. While the text might be spoken, the graphic has to be seen and thus allows to visualize a complex process. The strength of graphic decoding is the potential of densely packing information into narrow space, information that otherwise would be almost impossible to transmit (as on a map, for example). Tufte concludes that “visual displays rich with data are not only an appropriate and proper complement to human capabilities, but also such designs are frequently optimal.” (50). Through layering of information (in conceptual conclusive layers of color, shape, texture, clarity, etc.) this goal may be achieved (Tufte 53 ff.).

As in directly interpersonal communication, visual information can be distracted by *noise*. From a viewpoint of information theory noise can be described as “spurious information.” (Severin 45). It means an increase in information for the recipient of transmitted information through unintended means and thus the introduction of uncertainty about the transmitted message. A speaker's mannerism can distract from the spoken message. A bad print, inappropriate paper quality or structure, or errors in transmission of televised pictures, etc. introduce noise in graphic messages. Just as non-verbal communication in personal contact may convey a message that is the exact opposite of what someone wants to communicate, so noise can distort and revert the effect of a design project. While verbal communication seeks to compensate for noise by introducing redundancy (Severin 45 ff.), in graphic design – which can be revisited again to achieve clarity by “taking a second look” – noise is to be avoided through clarity and structure.

In a cross-cultural setting the concept of shared environment (fig. 1) becomes extremely important. Some elements of graphical encoding are based on cultural code that becomes meaningless when used in another culture. I remember looking

at the caricatures of a German magazine printed at the turn of the century – and couldn't find *anything* funny about it. I didn't have the cultural cues to interpret the message. On the other hand, principles of structure, as far as they are adaptations of our natural environment (see fig. 2, for example), utilize laws of human perception and are thus valid means of expression in cross-cultural context. But generally, the better we understand the target culture, the better our communication – no matter what form we use – will be.

Conclusion

Human interaction in direct and indirect form is characterized by a continuous stream of communication. We communicate through our outward appearance, our body language, the context in which we meet, our words, our behavior. Graphic Design in this respect is neither historically nor technically something that is foreign to this human trait. It is just *another* way in which humans communicate. Through its unique features it allows the transmission of complex information in a very condensed and comprehensive form (a sign, a caricature, a map). “At its best, design becomes inseparable from communication. Form becomes content.” (Arntson 35).

Resources

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