

Chapter 3

Essential Art Concepts

ABSTRACT

This chapter comprises a basic overview about visual literacy, discussion of art definitions, basic art concepts, elements and principles of design, differences between art, design, craft, technical issues, elements, and principles related to art, design, and many other disciplines, and the quality of display, among other topics. An example of translation from nature, with all resulting connotations, to the visual and the to the verbal and beyond the verbal takes the form of a project involving drawing an apple and then writing a short poem about the apple. The reader is invited to integrate meaning, visualization, and knowledge about an object.

INTRODUCTION: VISUAL LITERACY

Concepts and problems pertained to art and design emerge incessantly in the following chapters as the essential factors in nonverbal or not exclusively verbal productions such as creating visual solutions of abstract concepts, designing visualization, or a website. The central idea under this chapter's content is to provide those of the readers who did not find time or interest to study art-related problems with basic information that could be found conducive to creating meaningful projects

suggested in the framed spaces, which are present in the following chapters. Short introduction of this kind may be useful for those focused on domains other than visual arts, and may be helpful for those readers who would like to be reactive to further themes. The advantage of visual display of information over speech or writing is in its nonlinear, flexible time of viewing, multiple dimensions, and possibility of restructuring of its content. The readers' projects resulting from reading this book will hopefully display information aesthetically, with visible traces of reasoning about concepts.

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Visual literacy, which results from the ability to use a visual language to exchange information, is needed to design visual presentation of abstract concepts we are working on. When we apply strategies for visual problem solving, we communicate through visual images as icons, signs and symbols, as opposed to verbal symbols or words. One of the conditions for developing visual literacy is the visual intelligence, which makes provision for interchanging thoughts, opinions, or information without the use of spoken words. That means we apply visual processing in our thinking by creating images to communicate notions and ideas, gain insight into some difficult to analyze schemes and find patterns and order in complex structures. Scientists discovered time-related gains in cognitive performance of people from various countries (Flynn effect) along with growing visual intelligence. In his study of IQ tests scores for different populations over the past sixty years, James R. Flynn discovered that IQ scores increased from one generation to the next for all of the countries for which data existed (Flynn, 1987; 1994; 1999). Possible explanations of the IQ growth include increased years spent in formal education, the societal changes, better worldwide nutrition, and the increase in test taking skills. Visual intelligence of students is also increasing due to playing three-dimensional computer games that simulate real and virtual worlds. Since students are able to perceive, understand, and process progressively more complex visual messages, visual way of communication becomes more and more effective and important.

It may be sometimes difficult to draw a line dividing art, design, and craft because art works often serve as a basis for useful traditional and digital applications. In many cases we appreciate exceptional design or craft as equal to art. For this reason visual literacy is not a theoretical, abstract quality. For example, glass is usually considered a useful substance good for producing windows,

optical instruments, glassware, or mirrors. A glass sculptor Dale Chihuly (www.chihuly.com) utilizes glass for creating transparent sculptures of thin glass, and large indoor and outdoor installations on land, water, or air of intricate colors, thus becoming not only a glass sculptor but also a successful entrepreneur. One may say Chihuly converted a traditional craft form into art. Moreover, an interactive application for the iPhone allows the user to make own forms by blowing into the speaker of the phone and reshaping Chihuly's ocean life- inspired creations (<http://mashable.com/2012/05/12/chihuly.html>). Users can download this free application, make their own glass-blown sculpture following the style of the artist, and use the touch technology in an unexpected way.

Figures 1a and b present works of students taking my 2012 Computer Graphics courses, where, in concert with the title of this book, students go beyond text with their science inspired solutions by applying their art works to design projects and practical applications. Below there are examples of converting art projects and exercises in pattern design into functional objects such as t-shirts.

Taylor Royal (Figure 1a) illustrated his verse (written as a limerick), and then used his work to design a t-shirt.

*There once was a glamorous boat
That people said would always float
Till it hit some ice
Due to people vice.
To those dead this poem I devote.*

While Cody Johnson (Figure 1b) applied for this purpose his science-based artwork and a verse.

*Carbon is found in all things
From diamonds to airplanes to buildings
Without it nothing would exist
Earth would be a dark, dark abyss
Good thing we have carbon and all it brings.*

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