

## Chapter 9

# Visual Approach to Translating Data

### ABSTRACT

*This chapter examines some of the tools that enable a visual approach to translating data, beginning with a comparison of the use of a computer versus pencil in visual communication. A short note follows, discussing the evolution of imaging with the use of computing: the history of computers and then some examples of graphic display and early computer-generated art works. This is followed by a discussion of the basic ways of graphical display of data and strategies for visual problem solving in the context of art and design. Thoughts on visual translation of data include an introduction to computer simulation. Examples of computer simulation and evolutionary computing conclude the chapter.*

### INTRODUCTION

The making of simple images may be done successfully at all levels of technical proficiency, without any introductory exercises, even before mastering the tools and without losing the novice's enthusiasm. Suitable tools are needed for completing meaningful projects. However, making a good data graphics requires developing diverse skills – the visual-artistic, mathematical, and statistical. An integrative approach to creating computer art graphics allows using the computer not only as a

tool but also as a source of inspiration. Creation of art graphics depends not exclusively on a programming process or on the existence of human interface devices such as a mouse, keyboard, and joystick. It's good to keep in mind that the machine has the ability to accomplish the task precisely but without any evaluation; sometimes, it's good to learn not to ignore “happy accidents” so easily occurring while working with the computer.

It is usually accepted that the field of computer-based imaging belongs to the domain of computer science because graphics are used to process

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digital images and manipulate numeral content. Also, computer graphics share many common techniques and applications with the field of visualization. Both two-dimensional and three-dimensional graphic presentations refer often to geometry, but also to the ways of representing, processing, manipulating, and projecting data in a static or animated way. Many educators oriented toward both visual and technological literacy integrate the imaging techniques, such as 3D, time-based, interactive, and other graphics including those with emphasis on computer animation, web design, video graphics, virtual techniques, robotics, games, web-based, data and knowledge visualization, with general curriculum to match the changing expectations of professionals and students. For example, a research-based organization Information Resources Management Association (IRMA) has collected vast materials concerning the ways to locate, comprehend, evaluate, and organize information using digital technology (Association, I. R., 2013). The University of Texas in Dallas launched out instruction through gaming and interplay of art, music, and narrative with the

new media, and opened the Master of Arts and PhD programs as separate from the art department or the computer science department. Students in a section Art and Technology are required to learn programming; they develop projects aimed at interaction based environment such as gaming.

There is a saying “If it’s not on the Internet, it does not exist”. While this statement might seem accurate, more and more data gets lost or forgotten because it isn’t of interest anymore, isn’t novel, is expired, or there was a server error. While most of it is backed up and stored, some info gets lost. This may be one of the reasons for citing the Internet-based references as an URL followed by the date and time when the page was accessed.

In spite of all activities aimed at securing our achievements some of us may feel uncertain and anxious because of natural cataclysms and malevolent actions. Figure 1 “Timetable” tells about walking in the City with a regained confidence:

*Long day of errands in the City,  
Memories seen against the light,  
Times and places in order again.*

Figure 1. Anna Ursyn, “Timetable” (© 2002, A. Ursyn. Used with permission)



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