

Reviewed by Dr. Gail Kopp

Dr. Luca Botturi (editor), currently at the University of Lugano, has worked as an instructional designer and a researcher in Canada and Europe. Dr. Todd Stubbs (editor) describes himself as an instructional architect with Brigham Young University’s Center for Instructional Design. The contributing authors represent international work in the instructional design field.

I have to admit, I was pleasantly surprised by this book. My first reaction to reading the book was lukewarm – “oh….another instructional design book…” Avid readers in the field will find this reaction understandable; the content of instructional design books tends to be predictable, usually involving details of various instructional design models in the mould of Rothwell and Kazanas (2008) or collections of articles explaining instructional design constructs such as those by Ely and Plomp (2001). The Handbook of Visual Languages provides a different and very welcome look at the maturing field of instructional design (ID).

The book is shaped around a shared visual design language classification framework published by Botturi, Derntl, Boot and Figl (2006). Although the preface provides a brief description of the classification terminology around design language features, readers may well want to browse this article first. The editors asked each author to refer to this framework and familiarity with it will help the reader (1) to situate the various representations into a bigger picture of visual languages and (2) to temper expectations with respect to the context of intended use (i.e., different languages are intended for different purposes and not every language attempts to cover the whole spectrum of ID).

Many other instances of longitudinal integrity also flow through the book. It is obvious that the authors have read the other contributions and the frequent references to related concepts appearing in the other chapters allow the reader to collate, elaborate and extend the ideas presented. Unfortunately, the paper-based medium does not lend itself well to following the ideas across chapters. References are usually given by author name or chapter number; the headers only provide the chapter name. Searching for the cross-referenced material is time-consuming and frustrating. More complete headers would be one solution; however, an online format with hyperlinks would provide more intuitive access to connections across material and maximize the affordances for conceptual integration across readings.

In the three sections, the authors ask and attempt to answer some interesting questions: Why should we look at visual languages? What has already been done in other fields? What has been and is being done in visual instructional design languages? How successful is the use of visual languages with instructional design so far?

Section One: Foundations and Theory
The first section invites us to take another look at the “design” in instructional design. Intended as background foundation and theory behind visual ID languages, the five chapters in this section tackle questions like why we might want to look at visual languages and what has already been done in other fields. For those limited in reading time, Chapters I and III would be good places to start. Chapter I begins the book with an interactive survey and then uses this to illuminate, build on and, perhaps, change the reader’s personal beliefs around priorities of function, form, utility and aesthetics in instructional design practice. In Chapter III, the authors offer a thought-provoking overview of “design thinking” that helps to anchor the book in the larger world of design.

Section Two: Visual Instructional Design Languages

The second section presents ten examples of visual languages in ten chapters. The first chapter in this section (by Parrish) focuses primarily on visual representations for the narrative or “story-logic” in a learning experience and is one of the few chapters in the section which might appeal to educators and instructional designers at all levels of expertise. In contrast, the focus of the next nine chapters in the section is on languages that bridge the gap between computers and humans. Many readers will see this as a weakness of the book. Firstly, it is unlikely that instructional designers will find the computer-oriented efforts to be useful in general practice. The field of mapping instructional design into standardized representations and notations appropriate for computer execution is still in its first generation. Authors in the book accurately recognize the steep learning curve, the gap between representation and practice, the limitations, and the non-intuitive nature of the languages. These proposed approaches would seem to indicate that it is still easier to “adjust the designer” (i.e., use professional development to help practitioners learn the language, translate the effort, comply with the computer system, and avoid programming errors) than to create a language that will represent the complexity of everything that a novice or an experienced instructional designer might want to do.

A second discouragement for readers of these nine chapters might be the readability. Although each chapter makes explicit links between the instructional design concepts and their representation in the visual language of interest, most fail to close the loop to indicate what the computer (and/or the instructor) actually does with the various representations. In terms of processing, for example, what does the computer actually do with a “require dependency” or a “support-dependency” between two learning goals? If an instructional designer maps an existing course as a contract for an instructor, how would the final representation of this kind of complexity look? Failure to link the representations to a more familiar look-and-feel of practice might well make many of these chapters incomprehensible to many readers.

Having identified the challenges in the second section, the strengths of this segment should not be discounted. The book does present a range of efforts that reflect current and international thinking in this area – informative for instructional designers who are interested in Learning Management Systems, learning repositories, and learning objects. Also, less computer-oriented readers may well find that the stand-alone representations of various ID elements (e.g., roles, structure, function, logistics, dependencies, tools, environments, etc.) provide a mirror for their own practices, suggesting alternative ways of thinking, stimulating examination of personal beliefs, and promoting new and better ways of communicating with stakeholders. The eleventh and final chapter of section two is a particularly succinct and well-framed forum for this kind of an exploration. In this chapter, the editors provide a text description of an instructional unit which the authors use to visually represent their individual ideas. The resulting comparison helps to clarify the various approaches, links the representations to a concrete and understandable instructional situation, and brings the actual representations of
ID elements to the forefront.

As yet another positive reason for reading either the whole section (or just the first and last chapters), readers do not need access to the actual systems portrayed in order to adapt stand-alone representations to their own practices. Most representations (or adaptations of these) could be created using concept mapping tools or tables in a word processing package.

Section Three: Research Studies

The third and final section of the book presents and reviews some of the research in the domain, not only pointing out the gaps but suggesting (and studying) some of the ways in which the instructional design field might move forward. Between them, the chapters discuss the prevalence (or rather, the lack of) design drawing in ID, learning designs, ways of transitioning between design and production, and ways that might effect changes in practice and attitudes.

Looking at the book from the perspective of target audience, intermediate and senior instructional designers will likely find this book interesting and useful. Graduate students in educational technology and faculty who teach and research ID will also find this a stimulating resource. I would offer three cautionary notes to novice instructional designers and educators:

- The authors assume that the reader is already familiar with the principles and practices of instructional design. Few of the basic instructional design concepts are explained (e.g., task hierarchies, needs analysis, ADDIE, cognitive load, to mention a few). Yet, in many instances, understanding of these would be foundational to understanding the content of the chapter.

- Little mention is made with respect to the quality of the instructional design in the representations represented by the different languages presented.

- On occasion, the ideas are misleadingly “simple”. For example, one chapter promotes a language that could support model-based scaffolding. Experienced instructional designers will recognize this as akin to the first step of making an elephant sandwich. “Defining the model or the intelligent tutor” is much like “first, get an elephant” – much more easily talked about than implemented!

Beyond these cautions, the book provides a plethora of lenses for viewing the complexities of instructional design. A statement made by Davis, Shrobe, and Szolovits (1993) reflects a particular strength of this book:

In selecting any representation, we are in the very same act unavoidably making a set of decisions about how and what to see in the world. That is, selecting a representation means making a set of ontological commitments…. The commitments are, in effect, a strong pair of glasses that determine what we can see, bringing some part of the world sharp focus at the expense of blurring others…. In telling us what to see, they allow us to cope with what would otherwise be untenable complexity and detail. (p.19)

Below are listed only a few examples of the lenses offered:

- A culture-based model with, among other elements, a reference to a culturally-based time map and 25 design factors for culture

- A taxonomy of visual representations

- Visual notations for narratives (Aristotle’s Incline, Freytag’s Triangle, Hero’s adventure)
• Visual and textual languages for computer implementation (e.g., E2ML, coUML, IMS-LD, 8LEM)

• Various separation-of-concerns approaches (introduced in one of the chapters, but conceptually evident in many of the chapters presented)

• Gibbons’ instructional design layers

• Current work in learning designs

• Pattern designs (as presented in Christopher Alexander’s earlier work, (e.g., 1999) – another good author for instructional designers)

In summary, the editors and authors have done a creditable job of writing a book that moves beyond the usual. This Handbook of Visual Languages for Instructional Design challenges us to shift perspectives from the “same-old, same-old” variations on a theme to a meta-cognitive exploration of our own personal beliefs, alternative lenses, and the possibilities inherent in representation.

References


The Reviewer

In her fourth instructional design career phase, Dr. Gail Kopp has worked with all ages, taught a multitude of computer languages to computer professionals, and designed training from rocket science to brain surgery. Currently, as an assistant professor at the University of Calgary, her research focuses on context, simulation, and instructional design for medical education. She may be contacted at gkopp@ucalgary.ca