

## Book Review

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### *Slide Rules: Design, Build, and Archive Presentations in the Engineering and Technical Fields*

—Reviewed by

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**Index Terms**—Audience, cognitive science, engineering communication, presentation, visual communication.

**S**lide Rules is a new book in the IEEE PCS Professional Engineering Communication Series from the IEEE Press and Wiley that delivers to readers a thorough approach to “design, build, and archive presentations in the engineering and technical fields.” The book focuses particularly on the needs for preparing presentations for engineering and technical topics and audiences. The introduction of the book acknowledges influences by presentation gurus Cliff Atkinson, Nancy Duarte, Garr Reynolds, and Edward Tufte.

The book is written in a constructive manner, with criticisms of default-structured practices tempered with an understanding of complexities of technical and engineering contexts. Readers from different audiences can also appreciate how the book is organized and presented in terms of a small number of slide rules.

- Revisit presentation assumptions
- Write sentence headers
- Use targeted visuals
- Archive details for future use
- Keep looking forward

Reviews of literature compiled in chapters throughout the book include many theoretical and practical works relevant to advice on the communication of presentations. The bibliographies thus encompass a powerful curriculum of scholarship that educators or managers can also use to inform the preparation of technical or engineering presentations.

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As a reader reviewing this book, I find that the persuasiveness of the recommendations is supported by the research covered and by the examples shown. The book also provides a roadmap for preparing slides in the context of slide software applications used prevalently among technical and engineering organizations.

The book is organized into 13 chapters that are, at some point, essential for any presenter of technical or scientific content.

Chapter 1 is “Heed the Pleas for Better Presentations.” Before analyzing Slide Rule #1: Revisit presentation assumptions, the authors describe an investigation of the Columbia Accident Investigation Board linking poor slide design and poor communication to the Space Shuttle Columbia accident. The lesson is that slide design should not replace formal engineering review documents. The authors proceed to devote Chapters 2–4 to examining the first slide rule.

Chapter 2 is “Apply Cognitive Science and Tell a Story.” “As presenters, knowing our audiences, the contexts for the presentation, and the messages we need to communicate is the best way to ensure that we do not burden our audiences with high intrinsic or extraneous loads” [p. 24]. The authors proceed to present storytelling as an effective way to structure a presentation that reduces cognitive load. Presenters should moreover not rely on presentation advice that is pedantic and too simple (tell them . . . , tell them, tell them . . . )” [p. 24].

For example, the authors warn about creating content and design to reflect only the speaker’s point of view with little consideration of the audience. Advice for developing an understanding of audience is: “Whenever possible, try to engage your intended audience in pre-presentation conversations to determine their needs and perspectives.”

The authors selected examples of the organization of stories in terms of:

- Chronological
- Problem/solution/evidence
- Problem/evidence/solution (inductive)
- Spatial relational
- Cause/effect

The chapter provides a very good treatment of a rhetoric of narrative for complex topics, and is very appropriate to the stated goal of focusing on the needs for preparing presentations for engineering and technical topics and audiences.

For example, one of the most useful premises of the book is to design slides for an audience's cognitive load. The authors have moreover compiled a considerable bibliography of relevant research to support the premise:

Sweller discovered that the more visual and spatial referents audiences were given to establish the various contexts of highly complex information, the better they were able to comprehend and accurately recall the material later [3, 4].

Chapter 3, "Understanding Audience Needs," provides a lot of useful advice for readers toward determining a presentation's purpose including a series of steps by which writers can translate a preliminary outline into a more audience-centered outline for a more effective presentation. The authors write that a common characteristic of poor presentations is the use of content and or design that reflects only the speaker's point of view while conveying little consideration toward the audience [p. 30].

"Slide Rule #2: Write sentence headers," encompasses a practical approach toward developing presentation content. The authors moreover strongly suggest that telling a story can be an effective approach to developing a presentation. The book here is also rather effective in describing a rhetoric of narrative for complex topics.

There is also information about managing the logistics of a presentation, such as the location, scheduling, electronics, and so forth. Advice about coping with interruptions and for managing time for feedback effectively is also covered. A series of checklists provides guidance for common presentation scenarios such as face to face, room location, online, and room-online.

The authors also cover many approaches toward explaining complex material, exposing an attitude of 'dumb it down' as cliché, in favor of taking the time to focus on the first principles of complex material, such as definitions and graphic representations of data.

Here, in addition to other pages of the book, the authors' use of slide examples is very effective and probably applicable to a lot of complex content scenarios.

Chapter 4 is "Challenge Your Organization's Culture of Text-Heavy Slides." One of the exigencies for the book is the prevalence in many organizations of presentation practices that are developed in terms of the perspectives of the presenter rather than the audience. Chapter 4 is also intended for those developers who need to take a lead in an organization that might be entrenched in a text-heavy presentation culture. The authors cover a large number of considerations, often challenging assumptions, that an organization can use to comprehensively improve presentation practices. Toward this, the chapter provides a comprehensive rhetoric to critically analyze advice about preparing for a presentation. "Communication efforts are the cornerstone of good engineering skills. In today's workplaces, presentations are common, slides are pervasive, and time is short."

Chapter 5 is "Clarify Topics with Full-Sentence Headers." The authors contrast the use of full, complete, and concise sentence headers with headers that consist of fragmentary expressions. Several different examples of targeted sentences used for a purpose of a presentation are described.

Slide rule #3 is "Use Targeted Visuals." Chapter 6 is "Build Information Incrementally." Chapter 7 is "Generate Quality Graphs." The work of technical and scientific professionals is often subject to complex ideas. Following certain approaches elucidated by Edward Tufte, the authors integrate theory and practice in support of improving the effectiveness of various types of graphics for complex information.

Since visuals should support audience understanding, the authors provide a checklist for determining the right visual. A common thread for the examples in this chapter is to provide suggestions for improving the effectiveness of various types of graphics for conveying complex information. The authors provide a comprehensive selection of guidelines for each type of graphic visual shown, including bar charts, histograms,

scatter charts, line charts, area graphs, flowcharts, and so forth.

Ethical questions inherent in the construction of a graphic are also considered, with reference to ethical codes and guidelines for many disciplines. Questions about the accessibility of graphics among persons in an audience may also call for additional considerations described by the authors.

Chapter 8 is “Picture the Possibilities.” The power of photographs or drawings calls for presenters to carefully consider the use of visuals. Thus, the authors stress the importance of sentence headers and notes toward support for an audience to interpret an image used in a presentation. Speakers are also advised to manage the integration of images, such as computer-aided design (CAD) drawings, that are sourced from a specialized software program. The authors show a number of examples of how presenters can focus or highlight details of images (such as cropping, labeling, and so forth) in support of telling or interpreting the slide's story. Yet, whenever a visual is used in a presentation, there may also be certain ethical concerns for which a speaker is responsible.

Chapter 9 is “Temper the Templates.” The authors distill years of experience in providing readers with a constructive approach to assessing templates. Although templates can provide presenters with a consistency of style and branding, the authors also caution that certain presentation problems might be facilitated by certain features of default templates, such as an over-reliance upon bulleted lists.

The authors describe their before and after for improving a template; however, readers should also consider their own solutions in terms of their own identifiable scenarios. A checklist to simplify a template so that it only shows the technical information is provided on page 163. Readers are also advised to question whether a logo graphic needs to be a feature of every slide in a presentation. Otherwise, the book does not include any templates examples other than the slide rule pages themselves.

Chapter 10 is “Make Slide Decks with Archival and Legacy Value.” In many organizations, slides also serve a purpose as documentation of information after the presentation has occurred. “Creating truly useful, archival-quality slide decks that have a life *after* the presentation is a critical function many organizations overlook.” The authors provide such a persuasive argument to better consider the

audience and purpose of presentation slides, that presenters may want to justify using much text and many bulleted points.

The authors provide a number of techniques (such as notes or presenter notes features, or by using hidden slides) by which readers can develop slides into “forward-looking documents that future users can access and fully understand, all while lessening bullet use.” The authors further analyze problems that poorly bulleted information is subject to: spotty information, connections among bullet points that are not obvious, and the relevancy of each bullet point to a topic is not apparent.

Chapter 11 is entitled “Include More Than One Language.” While emphasizing the importance of knowing when English is not enough, the authors describe a technical work project of the United States Geological Survey (USGS) that involved sharing important information in different languages. Ross Stein of USGS advises of the need for bilingualism or of trilingualism when sharing technical work in other countries.

Also covered in this chapter is a description of plain language as an initiative of the United States Government, in addition to industrial initiatives for controlled language, such as the Boeing Simplified English Checker. General advice for deploying plain language refers to the audience: “Serve your audiences better by editing your own word usage toward clarity and understanding.” Other advice in this chapter covers techniques for presenting more than one language in a presentation.

Chapter 12 is “Enact Organizational change.” Communication is identified as one of the critical skills of engineering education by ABET, Inc. Other bodies, such as the National Academy of Engineering, American Society for Engineering Education (ASEE), Corporate Membership Council, and American Society of Civil Engineers (ASCE) also identify engineering communication as an essential skill for engineers.

The authors moreover envisage stages of acceptance by organizations toward transforming presentation or communication practices: Inspired, Incredulous, Assessed, and Accepting. Readers can anticipate that the advice in this book will be useful for speakers, practitioners, educators, and managers.

Chapter 13 is “Thinking Through the Next Big Thing.” The authors conclude with a survey of some new apps or developments, such as apps that can facilitate nonlinear presentation creation. The

authors also convey that workflows similar to video production might call for more extensive planning. Other new apps include 25screens for iPad, which enables a speaker to draw and annotate a slide while presenting.

In conclusion, the book is more than a list of rules for preparing slides. The authors present many different perspectives on presentation practices, referencing presentation gurus and cognitive research, all with an effective foundation in rhetorical concepts involved in the development of a presentation. The recommendations are

particularly persuasive with reference to cognitive theory, an acknowledgement of a wide variety of approaches or styles of presentation, and a knowledge of current presentation practices.

I also checked the index for any topics that I could think of and found it to be quite thorough and useful in finding leads for information covered in the book. If a reader is looking for just one book to reference, *Slide Rules* covers a lot of advice in one book, and can serve as a comprehensive rhetoric for the development and planning of presentations.