

S. Graf, and O. Lindsley, *Standard Celeration Charting 2002*. Youngstown, OH: Graf Implements, 2002. Hard cover. \$40.00. Available from Graf Implements; e-mail: Zerobros@aol.com.

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The main tool of Precision Teaching, the Standard Celeration Chart, provides a view of behavior on a standard, multiply/divide, proportional chart (Lindsley 1991b, 1997). With the publication of Standard Celeration Charting 2002 by Graf and Lindsley (2002), those interested in learning more about the Standard Celeration Chart (Pennypacker, Gutierrez & Lindsley, 2003) have a unique opportunity. The book offers 17 chapters written for the purpose of understanding how to use the Standard Celeration Chart (SCC). Published by Graf Implements, Standard Celeration Charting 2002 is the first book written by Graf and Lindsley.

Behavior analysts interested in the SCC could use Graf and Lindsley's book for introductory or advanced classes on behavior analysis. Such classes could use Standard Celeration Charting 2002 as a companion to a behavior analytic text. Educational (e.g., Early Childhood, General Education, Special Education) method classes, or classes that teach how to implement curricular methods to instruct college students, could also benefit when introducing formative evaluation as a practical way to chart behavior. As an instructor who has taught special education method classes and courses on behavior analysis, I reviewed Standard Celeration Charting 2002 to critique and discuss the text in relation to learning the Standard Celeration Chart.

#### Unique Features of the Text

Before describing the organization of Standard Celeration Charting 2002, some stylistic aspects of the text are worthy of note. First, Graf and Lindsley use "Plain English" throughout their text. They describe "Plain English" as a way to avoid jargon by using words with simple and direct meaning. As an example, they use the word "turn" instead of the word "slope changes" to report changes in the direction of trend lines. Lindsley delineates advantages of "Plain English" in full detail elsewhere (Lindsley, 1991a). For Standard Celeration Charting 2002, however, the "Plain English" style does promote a clear and understandable text. Although jargon seems necessary in scientific writing, especially for specialized fields of knowledge, the attempts by Graf and Lindsley (2002) to use language that reduces confusion and directly speak to their technical points enhances the text's readability.

A second stylistic convention used by Graf and Lindsley, Information Mapping, becomes very noticeable to the reader at first glance. Information Mapping (IM) offers a strategy to effectively manage information (Information Mapping, 2004). IM seeks to analyze complex information and extract its basic elements. After identifying the significant basic elements, IM organizes and presents the information so readers can access the content. The resulting “units of information” become “standardized information modules.” The standard format of IM facilitates communication (Information Mapping, 2004). The following shows an example of the Information Mapping format:

Estimate dots between lines	Estimate when necessary
	<ul style="list-style-type: none"> <li>• If you saw a dot between two lines, you can make a guess of its value.</li> <li>• Maintain two-digit precision—your guess can usually include one more digit to the right of the line value</li> </ul>

(Graf & Lindsley, 2002, p. 13).

The IM style replaces the full text/paragraphs style common in most textbooks. Although the Information Mapping format of Standard Celeration Charting 2002 may at first strike some readers as unusual when compared to typical paragraph organization, this reviewer eventually became familiar with the format and found that IM did facilitate organization and speed of reading. On the other hand, this reader felt some content would have benefited from traditional paragraph formats with more lengthy discussions. Perhaps this occurred because of a past history with the full text/paragraph style.

### Organization

The book’s 17 chapters are divided into four parts. The authors do not indicate why the chapters are grouped as they are; however, they do provide an explanation as to what each chapter will cover, and the chapters in each part fit together nicely. The distinct overarching topics emerged after I read the chapters in each part are as follows: Part 1 covers essential components of Standard Celeration Charting. Part 2 deals with understanding charting and the importance of the Standard Celeration Chart. The chapters in Part 3 cover practical and experimental uses of the Standard Celeration Chart. Part 4 has two chapters that both serve as resources for further practicing and understanding the content of the text and promoting entertaining ways to share Standard Celeration Charted data.

Part 1 includes chapters on behavior and time, frequency, celeration, bounce, jumps and turns, and outliers. Each chapter in Part 1

presents the fundamental ingredients of using the Standard Celeration Chart, specifically explaining what and how to chart. Part 1 begins with a chapter on a topic most important to behavior analysts: behavior and time. Following the first chapter, Graf and Lindsley provide chapters specific to considering behavior in units of measurement (i.e., frequency and celeration). Behavior has distinct characteristics when charted (i.e., bounce, jumps and turns, outliers), and those topics round out Part 1.

The organization for Part 2 also maintains a smooth transition of topics. As Carnine, Silbert, and Kameenui (1997) point out, knowing what something is and what something is not, or having a clear understanding of examples and nonexamples of a given concept, helps one to understand concepts and learn new information. Part 2 begins with the chapter, "Standard and Fill the Frame Charts," and clearly explains what is and what is not a SCC. Expanding on the critical elements of the SCC, the next chapter, "Percent Correct Charts and Dangers," explains why a behavior analyst should avoid dimensionless quantities and charts that show such scalar numbers. For example, a student who scores 90% on a math assessment may have done so in a span of 5 min. Another student scoring 90% on the same math assessment may have completed the problems in 1 min revealing an identical percent correct measure but with vastly different speed and perhaps competence. The percent correct measure masked the speed and hence part of the problem with a dimensionless measure. Part 2 also has chapters that show different varieties of SCCs and sample charts generated from datasets. The last two chapters in this part complete the picture of what SCCs and nonstandard charts look like. Examining a number of examples extended beyond the daily Standard Celeration Charts (e.g., weekly and yearly SCCs) helps solidify the importance of a standard graphic display. Oftentimes the nonstandard charts present data in a fashion that leads the reader to make an interpretation different from the true nature of the information. For example, when comparing the trends of two different data sets the nonstandard charts give the impression that one set of data have a greater growth rate than the other. When recharted on the SCC the opposite pattern emerges.

Part 3 offers chapters detailing the use of SCCs in applied or experimental settings. Readers will find the first two chapters "Learning Pictures" and "Fluency, Timings, SAFMEDS and Dangers," appropriate for applied work. The next three chapters, "Baselines and Experimental Design," "Behavior Project and Program Monitoring," and ChartStat™ cover research topics. The grouping of the chapters compliments one another

Part 4 topics include “Standard Celeration Charting and SAFMEDS,” and “Chart shares.” The chapter describing SAFMEDS shows how a university instructor could use them in a course on Standard Celeration Charting. SAFMEDS allow students to develop fluency with a prepared set of information points. Foundational information or definitions that students must know instantly make good SAFMEDS cards. The other chapter in Part 4 presents a tradition that has grown from a number of people using SCCs. Simply put, “Chart shares” allow people to share their charted data. Both chapters could serve as resources for a university course and ideas for creating a social environment focused on the review of Standard Celeration Charts.

### Content

The content involved with a book on SCC should provide instructions, explanations, and examples of how to chart. *Standard Celeration Charting 2002* does all three. The instructions and explanations come in the Information Mapping format and allow the reader to examine the main ideas followed by examples. Another useful part of the book content is the corollary practice sheets. For instance, in Chapter 11, “Learning Pictures,” Graf and Lindsley present the definition, origins, uses and other information regarding learning pictures. A practice sheet and examples of each learning picture follow. By having a practice sheet available, readers can independently, or with a peer, improve discrimination and identification of the chapter content. The readers will find the content in the text relevant to understanding how to use the Standard Celeration Chart as a very powerful analytic tool.

Overall, readers of *Standard Celeration Charting 2002* will find the information quantity in some chapters very extensive while other chapters have less content. Chapter 12 devotes one page each to fluency, timings, SAFMEDS, and practice sheets for a total of 4 pages. Each page has a net effect of allowing the reader to become aware of the specific topic but will not facilitate knowledge of how to create practice sheets or SAFMEDS. For a book that focuses mainly on charting, however, a detailed analysis and instructional method for creating tools such as practice sheets and SAFMEDS appears to fall beyond the scope of the text.

### Conclusion

As Johnson and Pennypacker (1993) observed, the continuous nature of behavior calls for powerful tools that allow scientists to understand nature or as in the case of behavior analysis to uncover lawful relations between behavior and the environment. The Stan-

Standard Celeration Chart represents a tool that creates stimuli affecting the behavioral scientist's verbal behavior in ways other graphs or charts may not. For that reason behavior analysts will find Graf and Lindsley's text useful. And beyond learning about the SCC, Standard Celeration Charting 2002 provides a comprehensive collection of information that explains the importance and pragmatic application of standard units of measurement, direct and continuous measurement of behavior, and guidelines for making Standard Celeration Chart-informed decisions. I recommend Standard Celeration Charting 2002 to behavior analysts and other professionals interested in behavior and examining behavior on Standard Celeration Charts.

### References

- Carnine, C. W., Silbert, J., & Kameenui, E. J. (1997). *Direct instruction reading* (3rd Ed.). Upper Saddle River, NJ: Prentice Hall/Merrill.
- Graf, S., & Lindsley, O. (2002). *Standard Celeration Charting 2002*. Youngstown, OH: Graf Implements.
- Information Mapping (2004). *Information Mapping: The method*. Available at <http://www.infomap.com/>
- Johnston, J. M., & Pennypacker, H. S. (1993). *Strategies and tactics of behavioral research*. Hillsdale, NJ: Lawrence Erlbaum.
- Lindsley, O. R. (1991a). From technical jargon to plain English for application. *Journal of Applied Behavior Analysis*, 24, 449-458.
- Lindsley, O. R. (1991b). Precision Teaching's unique legacy from B. F. Skinner. *Journal of Behavioral Education*, 1 (2), 253-266.
- Lindsley, O. R. (1997). Precise instructional design: Guidelines from Precision Teaching. In C. R. Dills & A. J. Romiszowski, (Eds). *Instructional development paradigms* (pp. 537-554). Englewood Cliffs, NJ: Educational Technology Publications.
- Pennypacker, H. S., Gutierrez, A., & Lindsley, O. R. (2003). *Handbook of the Standard Celeration Chart*. Cambridge, MA: Cambridge Center for Behavioral Studies.