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## Writing on writing

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## ABSTRACT

It is uncommon to find a behavior analytic or scientific analysis of creativity or of creative behaviors of people in the arts. This article looks at the use of direct instruction to teach writing to elementary through high school students. It also includes analyses of the author's writing behaviors across three years while writing works of creative nonfiction, behavior analysis articles, and poetry. The analyses include frequency, celeration, and variability of behavioral and environmental events. The project shows that the processes of writing (generating new ideas, thinking about writing) and the products (words written, edits made) can be analyzed behaviorally.

What occurs in writing behaviors before the printed word reaches an audience? I work and write in two separate fields—behavior analysis, and within that precision teaching; and the literary realm of fiction, narrative nonfiction, and poetry. Being steeped in analyzing behavior and counting events in life, I spend much time thinking about the writing process and product.

In writing about his writing, American novelist, [Wallace \(1977\)](#) shared a table of pages written per day and discussed how he kept the chart for self-discipline purposes. Writing is a solitary endeavor without employer and usually without deadlines. Writing an article or book under conditions of few if any external consequences, other than that of potential long-term success, puts the writer in a unique place. As Wallace said, he kept his record a secret as his colleagues might consider it “eccentric or unliterary” (p. 517). He later learned, a number of other writers also keep similar records. One he did not mention was Benjamin [Franklin \(1791/1962\)](#) who kept a detailed record of daily habits about life and work-related pursuits. Pear, who wrote the introduction and commentary to the Wallace article, displayed data from the writing process of three of Wallace's books on a cumulative record (1957/1999).

However, too often, literary authors who analyze writing processes come up short just before analyzing behavior. [Bayles and Orland \(1993\)](#) stated, “Between the initial idea and the finished piece lies a gulf we can see across, but never fully chart” (p. 51). Not only have some behavior analysts, such as Pear ([Wallace, 1977](#)) and [Skinner \(1953\)](#), looked into that gulf, I also have plunged into the middle of it and charted the waters of those ideas in addition to the frequency of words written per day. As a writer, I examine how I write, teach children ages of 7 to 18—how to write well, and am aware of my own writing process. My instruction has included less structured writers' workshops for children in primary grades as well as teaching thinking and writing more formally to children from the fourth grade through high school. I also have analyzed my writing a narrative nonfiction book about commercial fishing, with a specific look at and analysis of four writing behaviors—*has creative writing idea, thinks about writing, writes words, and edits manuscript*. The value of stating these in the present tense active voice is to show that each behavior is an action. I define these behaviors later. The value of counting and charting these four behaviors was to use a behavior analytic approach to view the details of the behaviors and frequencies of elements of creative writing.

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## 1.

Behavior analysis rightly prides itself on the most objective analysis of behavior to date (Johnston & Pennypacker, 1993; Lindsley, 2010; Cooper, Heron, & Heward, 2007; Kubina & Yurich, 2012; Vargas, 2009). Most people, however, assume that writing involves something subjective and lacks objectivity (Bayles & Orland, 1993). They further assume that writing is, therefore, out of the reach of behavior analysis. Radical behaviorism shows that this is not true. A methodological behaviorist states that we can only study behavior that we can observe directly in the environment (Donahoe & Palmer, 2004). Malott, Malott, and Trojan (2000) also state that methodological behaviorism needs a second observer to any behavior. In contrast, a radical behaviorist states that an individual can observe his or her inner behaviors (private events). As early as 1945, Skinner stated "...we must be content with reasonable evidence for the belief that responses to public and private stimuli are equally lawful and alike in kind" (p. 420). O. R. Lindsley (personal communication, March 1999) stated that millions of data points gave us thousands of pieces of information about human behavior (Lindsley et al., 1973). He called them Laws of Human Behavior. The data—millions of second, minute, daily, weekly, monthly, and yearly frequencies—have provided the information that allows us to state these inductively discovered truths about human behavior as Laws of Behavior (Calkin, 2003).

Data from over 800 standard celeration charts (hereafter called SCC) by 2009, and now over 1000 charts, show that the frequency, celeration (growth across time), and bounce (variability) of inner behaviors are as consistent across individuals and time as is any outer or public behavior (Calkin, 2009). Behavior is behavior whether inside or outside the skin. The mind-body dualism promoted by philosophers such as Plato and Descartes is false when we look at data. I have come to the conclusion that there is no line between the "mind"—the behavior of thoughts, feelings, urges, and all sensory perceptions—and the outward behavior of a person. These thoughts, feelings, urges, sensory perceptions and the outward behavior of a person lie on a continuum.

Intrigued and never satisfied with the idea of a closed and unknown "black box,"—the idea that I have environment shaping my behavior but never know what occurs in some unknown gulf, or "black box," between a stimulus and the behavior—I pried at the edges of this alleged gulf by counting *creative writing ideas* and *thoughts about writing*. These are only two of very many inner behaviors. Hundreds of people have counted, charted, and researched inner behavior<sup>1</sup> (Calkin, 1979, 1981, 1992, 2000, 2002, 2009; Conser, 1981; Cooper, 1991; Dean, 1973; Duncan, 1971; Sokolove, 1973; Stromberg, 1974; Kubina, Haertel, & Cooper, 1994; Kostewicz, Kubina, & Cooper 2000; Cobane, 2006; Patterson, 2008; Rich, 2009.)

To go beyond Wallace (1977) and other authors who kept track of pages written per day, radical behavior analysts can plunge into the world of *apparently* amorphous data when we begin to look at cognition, comprehension, and creation in arts or sciences. These areas are not easy to analyze, but none deserves the appellation of "amorphous." The study and research of astronomy and the aurora borealis and australis had their beginnings in the vagaries of indefinable occurrences, that is, until the scientists observed repeating patterns. Analysis of any behavior—inner, public, astronomical—brings it to the level of a natural science. Collect data, a lot of it, analyze it, refine the pinpointed behavior if necessary, collect more data, and continue. When analyzed, then we see how specific is auroral or writing behavior.

One of the aspects of behavior analysis that has enabled the study of inner behavior is precision teaching and its SCC (Kelly, 2016). Lindsley and a small group of his graduate students developed the SCC in the mid-1960s in Kansas. Based on Lindsley's mathematical and engineering background, this group developed a daily semi-logarithmic chart and began to investigate the learning of special education students. Within a couple of years, they continued using the SCC with regular education students, graduate students, behavior management issues, and inner behaviors. Examples of the SCC are in Figs. 5–7. Figs. 5 and 6 are daily charts. Fig. 7 is a monthly chart. Each chart has the count per time on the vertical (y) axis, and the regular intervals of calendar time across the horizontal (x) axis. The formula for calculating frequency is standard in any science:  $F = c/t$ —frequency equals count divided by time. The fact that the SCC is standard, enables anyone to look at celeration, or growth of learning across time, that is, count per minute per week. Because the chart is standard, it also makes it possible to look at the bounce (variability) of behavior. Does this bounce have a narrow and regular range, or does it have much variability or several spikes? Most of the 16,376 analyzed charts from Behavior Research Company are from the academic learning of students from ages five years through university graduate level (Lindsley, Koenig, & Nichols, 1973). Most of the charts involve behavior fairly simple to observe—reads words correctly and reads words incorrectly, writes digits to answer math problems, again correctly and incorrectly. Precision teaching, or as Lindsley et al. (1973) termed it, Precise Behavior Measurement, developed what constituted fluent behavior in reading, math, penmanship, comprehension, science, writing, and other academic behaviors. When a person reaches the aim of fluent behavior, then s/he had the foundation to move to the next skill level of learning (Calkin, 2012a). The website for Aims Instruction (Amey, 2013), a learning center that uses precision teaching, shows examples of students working toward fluent behavior. However, there are less easily analyzed and observed behaviors that all of us do—comprehend, think, feel, have an urge, perceive the world in which we live, and in some instances, use higher level thinking skills. The focus here is primarily writing, early creativity, and the accompanying inner behaviors, which, although small in the number of research study charts—1000 inner behaviors today vs. 16,000 outer and inner behaviors in 1973—still behave the way outer behaviors do.

The premise that we need two people to observe behavior nullifies the possibility of looking at any inner behaviors. However, statistical analyses of the inner behavior charts from these research studies clearly show that reports of inner behavior have dimensions of frequency, celeration, and bounce just as outer, public behaviors do (Calkin 2009; Lindsley et al., 1973). The statistical

<sup>1</sup> Several of these cited *Journal of Precision Teaching & Celeration* and *Journal of Precision Teaching & Celeration* articles, and many more in multiple areas from 1980 to 2005, are available at <http://precisionteaching.pbworks.com/w/page/18241124/The%20Journal%20of%20Precision%20Teaching%20and%20Celeration>

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