

Obituary

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J. RICHARD SIMON (1929–2017)

J. Richard (Dick) Simon, professor emeritus of psychology and industrial engineering at the University of Iowa, died on May 3, 2017. Simon received his PhD in psychology from the University of Wisconsin in 1955 and joined the faculty at the University of Iowa in 1957. He was a modest man who epitomized what it means to be a thorough experimental psychologist. Simon's enduring contribution to science is what has come to be known as the *Simon effect*: Responses are faster and more accurate when an irrelevant stimulus feature (typically left or right location) corresponds with the location of the response that is to be made to a relevant stimulus. For example, if a participant's task is to respond with the right key if the stimulus is red and the left key if the stimulus is green, performance is best when the red stimulus occurs in the right location and the green stimulus in the left location. The earliest reference to the spatial correspondence effect by this name of which we are aware is Hedge and Marsh (1975). As of July 13, 2017, entering "Simon effect" as a search term into PsycINFO yields 485 entries. Google Scholar shows citation counts of 956 and 998, respectively, for his 1967 article (with Rudell) and 1969 article. Perhaps most impressive is that Simon's yearly Web of Science citation count increases from less than 30 in the 1970s and 1980s to more than 150 in 2010–2016. This accelerating citation rate coincides with increasing realization of the significance of the Simon effect to a range of issues in attention and performance.

Simon's detailed work on the Simon effect came about by a serendipitous finding. As he described it,

My research on the so-called "Simon effect" began by accident. I was originally interested in the phenomenon of hemispheric dominance for speech. I designed an experiment to investigate the possible interaction between ear stimulated and handedness in an auditory reaction-time task. Without going into a detailed rationale, suffice it to say that I wanted to demonstrate that right-handed participants would respond faster to a verbal command—e.g., the word "right" or the word "left"—presented to their right ear than to their

left ear and that left-handed participants would respond faster to a command presented to their left ear than to their right ear. (Simon, 2011, p. 181)

When the results did not support this initial hypothesis but instead yielded an unexpected correspondence effect between ear stimulated and response, Simon decided to pursue the basis for this correspondence effect. Thus, Simon's work illustrates the value of a scientist paying close attention to the data and being willing to pursue what they suggest.

Note, though, that Simon and his colleagues did not just observe the phenomenon and move on to other matters, but they investigated it thoroughly to delimit conditions under which the effect occurs and evaluate possible explanations. In his words, "We embarked on a series of almost 40 experiments, in which we proceeded systematically, often repeating a previous step as we took a new step, until we learned a great deal about what has come to be known as the Simon effect" (Simon, 2011, p. 181). The extensions included demonstrating that a Simon effect occurs for visual as well as auditory stimuli, keypress responses as well as unimanual lever movements, and accessory tone stimuli presented to the left or right ear when responding to centered visual stimuli (Simon, 1990). The auditory Simon effect was shown to be evident through at least 1,000 trials of responding to low- or high-pitched tones, and comparisons of participants performing with the hands crossed (right hand on left key, left hand on right key) or uncrossed established that the relationship between stimulus locations and key locations is crucial (Simon, Hinrichs, & Craft, 1970). All these findings have held up in later research. In the current era in which concerns are expressed that "incentives favor novelty over replication" (Nosek, Spies, & Motyl, 2012) and that there is a "replicability crisis" in psychology (Pashler & Wagenmakers, 2012), Simon's research provides an outstanding example of how progress can be made by methodically studying a phenomenon through replication and extension.

At the surface, the Simon effect might seem a particularly representative example of the many artificial laboratory effects that cognitive psychology has generated over the years, admittedly not always

in close touch with the everyday life phenomena we aim to explain. However, a closer look reveals that the Simon effect has served as an important, if not crucial methodological tool to investigate a wide range of cognitive abilities; in fact, it provides "a handy means to investigate attentional operations, the representation of space and of one's body, the cognitive representation of intentional action, and executive control" (Hommel, 2011).

Both of us benefited greatly from Simon's research and were fortunate to get to know him. Remarkably, we both got in touch with him because of a green book, back then the trademark of Elsevier/North-Holland's *Advances in Psychology* series. R.W.P. invited Simon to contribute the above-cited chapter to a book he edited with T. Gilmour Reeve (1990). On several occasions, R.W.P. has remarked that bringing Simon's large number of studies on the Simon effect together in a single review chapter was probably the most important contribution of the Proctor and Reeve volume. B.H.'s dissertation research (as much of his later work) was based on the Simon effect, and so he invited him as a special guest to his first self-organized conference on theoretical issues in stimulus-response compatibility in rural Bavaria, the proceedings of which were published in the green series as well (Hommel & Prinz, 1997). Both of us were fortunate to be invited to speak at the 2008 conference at the University of Iowa, "Responding to the Source of Stimulus: An Interdisciplinary Conference in Tribute to J. Richard Simon," organized by Eliot Hazeltine and Toby Mordkoff. Simon was kind enough to invite all speakers to his house, where we were surprised to learn about two of his main hobbies: He was a wine connoisseur of remarkable expertise, and he had us engage in an extended study in which we were to rate pairs of (anonymized) wine of increasing price difference (up to \$3 vs. \$100) on a number of relevant feature dimensions. And he owned the world's third most important collection of *Ere ibeji* twin figures of the Yoruba people in Africa, who have one of the highest rates of twinning in the world (Figure 1).

Sometimes little details go unnoticed and underappreciated in science. Dick Simon devoted much of his career to careful investigations of a phenomenon that he realized was important but that few other researchers did. Over time, cognitive psychologists



FIGURE 1. Dick Simon reaching for a figure from his collection of Ere ibeji twin figures at the time of the 2008 conference in his honor. Used with permission

have gained a better appreciation of the value of the Simon effect and Dick Simon's foundational research on it. This is a legacy that most psychologists would be envious to leave at the end of their careers. Simon is survived by his daughters, Alissa and Sue, and the many researchers who have been and will be influenced by his work.

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