Jack A. Adams (1922–2010)

Jack A. Adams, a noted engineering psychologist, was born in Davenport, Iowa, on August 3, 1922. He died from cancer in Falls Church, Virginia, on September 22, 2010, at age 88. Survivors include his two children, Samuel Adams of Indiana and Sara Cashell of Oregon, as well as three grandchildren and three great-grandchildren. During World War II, from 1943 to 1945, he served with distinction in the U.S. Army Infantry and received the Bronze Star. After military service, Jack attended the University of Iowa and, in 1951, completed his doctorate in experimental psychology. His dissertation was titled "The Influence of the Time Interval After Interpolated Activity on Psychomotor Performance." Jack acknowledged the "valuable advice and assistance" of Don Lewis throughout his investigation.

Following initial work as a research psychologist at the U.S. Air Force Personnel and Training Center at Tyndall Air Force Base from 1951 to 1957, Jack spent the remainder of his professional career at the University of Illinois at Urbana–Champaign. He directed the Aviation Psychology Laboratory there from 1957 to1965 and was a faculty member in the Psychology Department until his retirement as professor emeritus in 1987. In 1971 he was president of Division 21 of the American Psychological Association (Society of Engineering Psychologists), and in 1976 he received the Franklin V. Taylor Award for Outstanding Contributions to Engineering Psychology from the division.

Jack published more than 100 articles in refereed journals, and his article on his closed loop theory of motor learning, published in 1971 in the *Journal of Motor Behavior*, became a classic for scholars and researchers in the field. In the article, he put forth the important concept that when humans practice a motor skill, an anticipation of the feedback is triggered as a neural impulse on each repetition. This is referred to as an "efferent copy" or "feedforward" trace. On completion of the repetition, feedback is compared with the feedforward signal, and the discrepancy is used as the closed loop output on which learning is based.

Beyond his highly recognized specialty in motor behavior and motor learning, Jack's scholarship extended to several other areas as well. First, he contributed to the general study of learning and memory by writing a widely used textbook (*Learning and Memory: An Introduction*, Dorsey, 1976) notable for its equal emphasis on the basic issues of learning and memory, and the applied issue of training. Second, his scholarship addressed broader issues of engineering psychology and human factors in several insightful reviews and in one of the finest critiques of human reliability analysis that has appeared in the open literature ("Issues in Human Reliability," 1982, *Human Factors, 24,* 1–10). As would be anticipated from his closed loop theory, much of this critique centered on the complications of reliability computation as imposed by human response to feedback both from the human's own errors (error monitoring and self-correction) and from system errors. He also wrote a textbook in human factors engineering (*Human Factors Engineering*, Macmillan, 1989) that is notable for comprehensive chapters on motor (manual) control and on error and reliability.

Perhaps Jack's most noteworthy accomplishment during his tenure at the University of Illinois was his vital role in advancing the academic program in engineering psychology. He chaired and served on several university search committees to add engineering psychologists as faculty members in psychology and to hire engineering psychologists to direct both the Institute of Aviation and the revitalized Aviation Research Laboratory. Through the combination of graduate courses in the Psychology Department and research in the Aviation Research Laboratory, the University of Illinois at Urbana–Champaign came to offer a major graduate training program in engineering psychology thanks to his efforts and those of other senior faculty who Jack encouraged to join him. Engineering psychology faculty members whom Jack was involved in hiring at the University of Illinois included Ralph Flexman, Charles Hopkins, William Montague, Stanley Roscoe, Hank Taylor, Christopher Wickens, and Robert Williges.

As an engineering psychologist, Jack advocated the use of rigorous experimentation in basic research topics that could be used not only in the development of theory for human performance but also to investigate applied research problems. He was a strong supporter of academic excellence, and his discussions of developing and testing new research concepts were always a source of enlightenment. Jack's precision as an experimentalist and writer was as admirable as the precision and organization of his office and his daily schedule.

For those who had the privilege of knowing Jack, he was a person with an incisive and dry wit. For many years he consistently held what he called a biweekly "motor skills seminar" in the raquetball courts at the University of Illinois, where he often humbled opponents nearly half his age. He was a trusted faculty colleague, an encouraging mentor to junior faculty, and an advisor to a large interdisciplinary group of graduate students throughout the university who sought his guidance and valued his expertise on their graduate committees. Many of these individuals have distinguished themselves in their own professional careers, attesting to his tutelage. The outstanding contributions of Jack A. Adams to engineering psychology will remain, but his colleagues will miss their interactions with a good friend.

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