

MEMORIAL RESOLUTION

Malcolm L. Fleming

(1919-2021)

Malcolm (Mac) Fleming was born in Schaller, Iowa in 1919. He lived to be one day short of 102. His was an extraordinary life, very well lived. At various times in his life, he was a chemist, a biologist, a war photographer, a film maker, a communications researcher, an administrator, a professor, and a published poet at the age of 101.

He moved with his family to Oregon early in life as his father relocated in Presbyterian ministry. After completing a chemistry degree from Oregon State in 1944, he entered the Army Signal Corps as a combat photographer. After the war, he expanded his knowledge of photography working as a scientist at Eastman Kodak, developing the “gold standard” of color film—Kodachrome. His motivation to pursue “all things visual” led him to move his new family, wife Ruth, son Steve, and daughter Alice, to Bloomington to pursue his doctorate where he met other like-minded students and faculty who were embracing the goal of making educational films more effective.

Mac joined, and eventually took the reins of, the Motion Picture Production Unit that had been involved in producing military training films. He was intrigued to be working with skilled craftsmen, technicians and faculty with a diversity of subject matter expertise and specializations in the media production process. During these middle years, Mac was an administrator in the Audio-Visual Center (AVC), working with students from the U.S. and 120 countries. The AVC had become a large communication nexus of services to the university, and nationally and internationally with several educational development projects in Southeast Asia and Africa. It included a nationally renowned media library, renowned educational graphic artists, an educational film production unit, several curriculum and instructional support services, and collateral services. It was the largest and most complex organization of its kind in higher education.

All senior staff were expected to teach, do research, and serve in their various specialties. The organizational culture emphasized collective rather than individual success. For example, individual film credits were not listed in the completed films. The academic/service environment was dynamic with a blended craft and social science intellectual evolution in full bloom, aided by a team of behavioral and cognitive scientists. Mac’s primary motivation was to quietly and diligently pursue a broad program of research, ‘mining’ social science literature in order to improve the practice of educational communicators and the daily practice of audiovisual services. The net result of his published work was a series of seminal publications that led to an outsized change in educational practice.

Mac’s direct area of supervision was the film production unit. His unit produced over 100 educational films. The films were distributed worldwide in all levels of education with some senior staff members going on to win international awards for their work. This supported Mac’s

vision of putting teams together that could produce films serving the educational needs in K-16 classrooms around the country. Mac understood that the unique value of film was that it can illustrate, in realistic fashion, phenomena that are unseen to the naked eye. Two international award-winning examples were films using the special Cinephotomicroscopy capabilities of the AV Center, “The Chick Embryo” and “Volvox: Mitosis & Meiosis” by Clancy Flaten & George Vuke, who were two of the dozen “new social science media designers” and School of Education faculty employed by the AV Center.

In the 1960’s, Mac began a research effort to review the most relevant literature in communications and psychology to carve out his unique perspective of how well-designed words and pictures achieve efficient and effective learning. In many ways, it was an outrageously ambitious plan. His work coincided and was influenced by the emerging study of semiotics, which centered on the “meaning” of pictures. The notion of universal meaning intrigued Mac. He had been taking pictures all his life and he had a goal, with every picture, of communicating an effective message. He was often surprised to find that students saw purposeful images and explanations in contradictory ways. This dilemma led to an extensive review of perception literature. He believed educators communicating with pictures could more accurately predict the meaning students understand. As he began to find explanations for the anomalies in student misunderstandings, Mac developed principles of design for combining words and pictures in instruction. His central proposition was: When one asks about combining these elements, the permutations and positive consequences expand exponentially. Mac’s seminal contribution was the concept of message design, which was elaborated in *Instructional message design: principles from the behavioral sciences* (1978), co-authored with Howard Levie and a second edition updating their earlier work, *Instructional Message Design: Principles from the Behavioral and Cognitive Sciences* (1993). These two efforts marked a turning point in the concept of educational media design, from a craft to a social science.

Both the first and second editions became widely recognized as seminal works in the field. The original edition was recognized by the Association for Educational Communications and Technology (AECT) with the Annual Achievement Award, signifying the most important contribution to the field in 1978. Mac was characteristically modest in acknowledging the many references to his works. Generations of “baby boomers” were fortunate to be students in his class, and were at first surprised by his introspective, understated style and then humbled by his immense intellect. His graduate students reported expectations to frame educational content using his comprehensive work but were never criticized sharply or with emotion. They did learn that it may take a generation or two to master his lessons, but those who embraced it prospered in academic and service careers as a function of his mentoring.

As Mac approached retirement, he characteristically prepared for the next stage of his life with thoughtful discipline and persistence. When a friend encountered Mac and Ruth walking the streets of Bloomington with backpacks, they reluctantly admitted they were filled with rocks, to help prepare the couple for the rigors of hiking adventures around the country and abroad. He participated actively in the First Presbyterian Church’s social justice activities supporting immigrants, raising funds for special causes, and actively socializing, including extended hiking

trips with church members. One could always depend on Mac and Ruth stepping off the Meadowood Shuttle at many of the School of Music venues—especially the summer band concerts.

Mac characteristically pursued intellectual challenges as he aged and dealt with the loss of his life partner and devoted wife, Ruth. He went on to publish a book of World War II photographs he had taken as a U.S. Army combat photographer, *From War to Peace in 1945 Germany: A GI's Experience* (2016). Given his research into combining words and pictures, it should not be surprising that he supplied captions taken from his notes overseas so that he could be certain that readers would understand the meaning of each photograph. Finally, always eager to learn and master new skills, he began a study of poetry, because he had not enjoyed it in his youth. That serious effort resulted in a book of his poems published at the age of 101, *Lifetime Visions* (2020), and he added his photography to enhance the meaning of his poetry.