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The information-loss model: a mathematical theory of age-related cognitive slowing.

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The psychology of aging has tended to generate experimental hypotheses from cognitive theories that are derived from the performances of young adults. [Salthouse \(1980\)](#) has called for theories and hypotheses that are based directly on data concerning age differences in adult performance. The information-loss model is such a theory in that its inspiration comes directly from consideration of the results of experiments on the effect of age on processing speed rather than being adapted from existing theories of information processing. However, the present effort is equally concerned with both the fundamental nature of information processing and the way in which it is affected by age-related changes. From the standpoint of the information-loss model, these concerns are inextricably intertwined: To understand the relation between information processing in older and younger adults, it is necessary to consider the nature of the relation between information-processing hardware and software, and to evaluate ideas about the nature of cognitive processing, it is useful to test these ideas against data from experiments comparing performances of older and younger adults. In a certain sense, one can view age as a natural experiment as well as a fundamental aspect of the human experience, and it is to be hoped that psychologists will learn from both the experience and the experiment.

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