

## AN ADDITIVE MODEL FOR RELATIONS BETWEEN AQT SINGLE- AND DUAL-DIMENSION NAMING SPEED<sup>1</sup>

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*Summary.*—Color-form naming in *A Quick Test of Cognitive Speed (AQT)* is used to assess processing speed on three rapid automatic naming tasks, two of which measure single-dimension and the third of which measures dual-dimension naming speed. These tests have been used to identify changes in processing speed associated with normal aging. The present study evaluated whether a simple additive model could explain the normally expected relation between scores on measures of single- and dual-dimension naming speed. The AQT color (C), form (F), and color-form (CF) naming tests were administered individually to 270 adults (ages 18 to 70 yr.). Paired-sample *t* tests mean comparisons of C + F and CF naming times for the total group and for three age cohorts (ages 18 to 34, 35 to 54, and 55 to 70), each with 90 adults, indicated significant mean differences between these processing-speed measures for the total group and for the 18- to 34- and 35- to 54-year age cohorts. Thus, a simple additive model does not explain the relationship between single- and dual-dimension naming speed across ages. To provide a better description, an additive model with “overhead” (a measure of processing efficiency) was proposed and norm-referenced for using the AQT tests to assess normal and atypical ranges for dual-dimension processing efficiency (overhead). ANOVA with *post hoc* analysis (Scheffé) compared AQT C + F, CF, and overhead means across age cohorts. The results indicated significant mean differences for the CF and overhead measures, but not for the C + F measure. Normative ranges for typical overhead sizes were established for each age cohort. In clinical practice, an overhead larger than typical or normal for a given age would suggest executive dysfunction, involving attention, visual working memory, and set shifting.

*A Quick Test of Cognitive Speed (AQT)* color-form naming is used to assess processing speed on three rapid automatic naming tasks, two of which measure single-dimension speed and the third dual-dimension speed (Wiig, Nielsen, Minthon, & Warkentin, 2002). These tests have been used to identify changes in processing speed associated with normal aging (Jacobson, Nielsen, Minthon, Warkentin, & Wiig, 2004; Wiig, Nielsen, & Jacobson, 2007). The minimal, but significant, reduction in naming speed of about 1 sec. per decade of aging between ages of 15 to 85 years was noted. Other studies of normal aging point to similar age effects on information processing with a normal slowing of various speed variables, such as reaction time and perceptual, psychomotor, and psychophysical speed (Salthouse, 1985, 1996, 2000, 2004; Verhaegen & Salthouse, 1997; Perry & Hodges, 1999).

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