CHC Cognitive-Achievement Relations:

What We Have Learned From the Past 20 Years of Research

Supplementary Information Referenced in Table 1 Footnote (e)

(will be posted to web page with URL when manuscript in final form)

We believe an important contribution of the current research synthesis is the identification and classification of the type of research methods utilized during the past 20 years. We believe this information can improve users understanding of all COG-ACH relations research and improve research via assisting investigators select research designs appropriate for their specific research question(s). Unfortunately, space limitations did not allow a thorough discussion of the different methods. Instead, we offer a series of annotated visual-graphic conceptual figures and recommended readings.

Only studies 7-10 (Floyd et al., 2006; Ganci, 2004; Hale et al., 2008; Proctor et al., 2005) did not use multiple regression (MR) or structural equation modeling (SEM) methods (see Table 2). These four investigations represented less than 10 % of all sample analyses (8.2 %). Furthermore, the methods employed in most of these small subset of studies can be subsumed under MR with manifest variables (Keith, 2006; Keith & Reynolds, in press) as they are all variants of the statistical class of methods typically called the *multivariate general linear model (MGLM)*. Thus, this manuscript supplement presents visual-graphic conceptual models, with annotated notes, for the research designs used in the majority of sample analyses (91.2 %). The

reader is encouraged to review Keith (2006), Keith and Reynolds (in press), Green & Thompson (2006), Pedhazur (1997) for explanations of the analysis methods listed in Table 2.

Floyd, R. G., Bergeron, R., & Alfonso, V. C. (2006). Cattell-Horn-Carroll cognitive ability profiles of poor comprehenders. *Reading and Writing, 19*(5), 427-456.

Ganci, M. (2004). *The diagnostic validity of a developmental neuropsychological assessment (NEPSY) - Wechsler Intelligence Scale for Children-third edition (WISC-III) based cross battery assessment.* Retrieved from ProQuest UMI Dissertation Publishing (UMI Microform 3150999).

Green, S. B., & Thompson, M. S. (2006). Structural equation modeling for conducting tests of differences in multiple means. *Psychosomatic Medicine, 68*, 706-717.

Hale, J. B., Fiorello, C. A., Dumont, R., Willis, J. O., Rackley, C., & Elliott, C. (2008). Differential Ability Scales-Second Edition (Neuro) psychological predictor of math performance for typical children and children with math disabilities. *Psychology in the Schools, 45*(9), 838–858.

Keith, T. Z. (2006). *Multiple regression and beyond.* Boston: Allyn & Bacon.

Keith, T. Z., & Reynolds, M. R. (2009). Advances in quantitative research. In T. B. Gutkin & C. R. Reynolds (Eds.), *The handbook of school psychology* (4th ed., pp. 3–29). New York: Wiley.

Pedhazur, E. J. (1997). *Multiple regression in behavioral research.* New York: Wadsworth.

Proctor, B. E., Floyd, R. G., & Shaver, R. B. (2005). Cattell-Horn-Carroll broad cognitive ability profiles of low math achievers. *Psychology in the Schools, 42*(1), 1-12.