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1. COGNITIVE CORRELATES OF PERFORMANCE IN COMPUTER PROGRAMMING BY CHILDREN AND ADOLESCENTS (DEVELOPMENT, BASIC PROGRAMMING) ............................................................ 1

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The purpose of this study was to investigate the relationships among cognitive development (as defined by Piaget), selected programming aptitudes, and performance in a BASIC programming class by children and adolescents. Cognitive development, verbal reasoning, and quantitative reasoning were examined as they relate to performance in BASIC programming.

Fifty-seven children and adolescents attending public schools in Broward County, Florida served as subjects for the study. Ages of the subjects ranged from eight to fourteen years. The students voluntarily enrolled in a 30 hour class in BASIC programming. Four tests were administered to each subject: the Inventory of Piaget's Developmental Tasks (IPDT), designed to measure Piagetian development, and the Verbal Reasoning, Number Series, and Quantitative Relations subtests of the Cognitive Abilities Test as measures of verbal and quantitative reasoning. The measures of Piagetian development, verbal reasoning, and quantitative reasoning comprised the independent variables. The dependent variables were sums of scores on tests of interpreting and generating BASIC programs; these tests were administered at the end of each unit of study. A multiple regression model was utilized to analyze the data.

The results indicated that cognitive development, as measured by the IPDT, was strongly related both to interpreting and generating BASIC programs. When IPDT was entered into regression equations with the other variables (verbal reasoning, quantitative reasoning, and age), IPDT was the only significant predictor of both interpretation and generation scores. When IPDT was not included in the analysis, quantitative reasoning was significantly related to both interpretation and generation tasks; age was a significant predictor of interpretation scores, but did not significantly predict generation scores. Verbal reasoning did not significantly add to the prediction of performance in this sample of children and adolescents when combined with the other variables of level of development, quantitative reasoning, and age.