Developmental Assessment of Young Children (DAYC)

The Developmental Assessment of Young Children (Voress & Maddox, 1998) is an individually administered, norm-referenced battery of tests designed to measure five developmental abilities among children from birth to 5 years of age. The five areas measured are cognitive, communication, social–emotional, physical development, and adaptive behavior; these correspond to the five assessment areas mandated by the Individuals with Disabilities Education Act for identifying young children with developmental disabilities. The majority of the assessment can be conducted either through interview with a parent or direct observation of the child in a natural setting. However, some items require that the examiner directly observe the child. Each subtest requires between 10 and 15 minutes of administration time. The authors identify four uses of the test: (1) identification of children with developmental delays, (2) determination of strengths and weaknesses, (3) documentation of progress, and (4) research.

Subtests

Cognitive  This 78-item test measures cognitive skills such as "attention, memory, purposive planning, decision making, and discrimination" (p. 4).

Communications  This 78-item test measures both receptive and expressive language skills and examines verbal and nonverbal communication.
**Social–Emotional**  This 58-item test measures a variety of social skills considered necessary for children to establish relationships with others.

**Physical Development**  This 87-item test measures gross- and fine-motor development.

**Adaptive Behavior**  This 62-item test measures a variety of daily living skills, such as "toileting, feeding, dressing, and personal responsibility" (p. 4).

**Scores**

Each item is scored "passed" (1 point) or "not passed" (0 points). Scores for each subtest are summed in calculating the subtest raw score. Subtest standard scores (mean = 100; standard deviation = 15), percentile ranks, and age equivalents are determined using a table in the back of the manual. These tables provide scores based on two- to six-month age intervals. The examiner can compute a General Development Quotient (GDQ) if all five subtests are completed. The GDQ is a standard score (mean = 100; standard deviation = 15), and can be converted into a percentile rank using manual appendices.

**Norms**

The DAYC was normed on a sample of 1,269 children from 27 states and 1 Canadian province. The sample is representative of the U.S. population (as reported by the U.S.
Bureau of the Census, 1996) in terms of geographic region, gender, race, residence (urban versus rural), ethnicity, family income, and educational attainment of parents. Disability status of individuals in the sample was compared to the population; there were slightly fewer individuals in the sample with diagnosed disabilities. However, 6 percent of children in the sample were considered at-risk for developing a disability. Numbers of individuals at particular ages included in the sample ranged from 158 at age 4 to 273 at age 6. Information on sample characteristics (geographic region, gender, race, residence, and ethnicity) was also provided according to age (in years). Cross-tabulations across other participant characteristics were not included in the manual; thus, the characteristics of the comparison group are not entirely clear.

**Reliability**

As a measure of internal consistency, coefficient alphas were computed for each of the subtests and composite according to 6- to 12-month age intervals. All coefficients met or exceeded .90; composite coefficients met or exceeded .95. However, the age groups used to compute these estimates were not the same as the age groups used to convert raw scores to percentiles in the manual. Reliabilities were also computed for certain groups of students (European American, African American, Hispanic, males, females, at-risk, and students with disabilities). Results indicated high internal consistency for each of these groups of students (coefficients ranged from .98 to .99); however, these were not computed by age level. Test–retest reliability was determined based on two samples of children ($N = 31$, and $N = 18$) tested twice in such a way that children would not change
age groups between testing administrations. Results indicated a high degree of reliability (correlations of .94 to .99 across subtests).

Validity

Three types of validity were presented by the authors: content, criterion-related, and construct validity. The authors presented a rationale for item selection as evidence of content validity. In generating items, they consulted relevant research literature and examined other measures of language, social, motor, and adaptive development. Item analyses were conducted to demonstrate that items met necessary statistical criteria for inclusion in the test. Very limited item bias was identified for various dichotomous groups of students analyzed (male versus female, African American/non–African American, disabled/nondisabled, etc.). The composite and subtest scores of the DAYC were correlated with the total score of the Battelle Developmental Inventory: Screening Test (BDI) and the developmental quotient of the Revised Gesell and Amatruda Developmental and Neurologic Examination among two samples of children (26 children for the Battelle, and 18 children for the Gesell). Correlation coefficients ranged from .41 (DAYC Physical Development subtest correlated with Gesell Coefficient) to .61 (DAYC Cognitive subtest correlated with BDI coefficient). The composite score coefficients were .48 (with Gesell Coefficient) and .57 (with BDI: Screen Coefficient). Construct validity is addressed by illustrating that each of the DAYC subtests was highly correlated with age in the normative sample. Also, children considered at-risk and children with identified disabilities scored lower than average on each of the subtests. Children considered at-risk
scored approximately two-thirds of a standard deviation below the mean, and children with disabilities scored about two standard deviations below the mean on each of the subtests. Finally, results of factor analyses indicated one underlying test factor that corresponded to the composite score for various subgroups of individuals (females, males, African Americans, Hispanic, students with disabilities, at-risk, normally developing).

Summary

The DAYC is a battery of individually administered, norm-referenced tests that measure a variety of developmental abilities (cognitive, communication, social–emotional, physical development, and adaptive behavior) among children from birth to 5 years of age. It can be administered via interview with someone who knows the child well, although some items require direct interaction with the child. Alternatively, the examiner can conduct the entire assessment by directly observing the child in the natural setting. High reliability coefficients are presented in the manual; however, these coefficients are based on age intervals that do not correspond to the age intervals used to convert raw scores to percentiles. Validity data are provided; however, the criterion-related data are lacking detail. Overall, the DAYC is a relatively good tool to use (in addition to other methods) for identifying children who may have developmental delays or disabilities.