**Mullen Scales of Early Learning (MSEL)**

The Mullen Scales of Early Learning (Mullen, 1992) is an individually administered, norm-referenced test intended to assess modality performance and to identify learning ability, learning disability, and mental retardation in children between 21 and 63 months of age. The MSEL differs from the IMSEL in that MSEL does not have a scale for gross motor ability.

**Subtests**

The 144 items in the MSEL are equally distributed among the test's four subtests. Each subtest is subdivided into 9 half-year age intervals, and basal and ceiling rules are used in each subtest. The subtests follow.

**Visual Receptive Organization**  Items in this test require visual localization, tracking, and scanning. Examples of items (at specific age levels) include discriminating forms (24 months), matching letters (48 months), and demonstrating memory for form (66 months).

**Visual Expressive Organization**  Items in this test require fine-motor skill, eye–hand coordination, and motor planning and control. Examples of items (at specific age levels) include copying a vertical line (24 months), stringing beads (36 months), and copying a square (60 months).

**Language Receptive Organization** Items in this test require auditory discrimination and auditory/motor ability. Examples of items include comprehending action words (30
months), following three unrelated commands (54 months), and knowing left from right (60 months).

**Language Expressive Organization** Items in this test assess overall verbal expressive abilities. Some examples are using two-word phrases (24 months), comprehending spoken questions (36 months), and orally repeating spoken sentences (60 months).

**Scores**

Clear and specific scoring criteria are provided for each of the 144 items. Suggested starting points are also given in the manual. Because rules for establishing ceilings and basals are used, children are not required to complete all items. Test ages are computed for each subtest by adding 1.5 months for each item passed above the basal age. Test ages can be converted to normalized $T$-scores by using tables based on the child's age. Thus, test ages correspond to different $T$-scores at different ages, and $T$-scores have the same meaning regardless of a child's age.

**Norms**

No sampling plan is described in the MSEL manual. The norms, which required eight years to develop, consist of 1,016 children from 100 different sites. Norm tables are available for the following ten age groups:

1 No data are presented in the test manual to indicate how ages were assigned to specific items. Working backward from $T$-scores to test ages suggests that ages are overestimates of the age group’s mean.
1. 22 months (children 22 through 23 months old)
2. 25 months (children 24 through 26 months old)
3. 28 months (children 27 through 29 months old)
4. 31 months (children 30 through 32 months old)
5. 36 months (children 33 through 38 months old)
6. 42 months (children 39 through 44 months old)
7. 48 months (children 45 through 50 months old)
8. 54 months (children 51 through 56 months old)
9. 60 months (children 57 through 62 months old)
10. 66 months (children 63 through 68 months old)

However, sampling was based on eight age groups. (The 21- to 23-month and 24- to 26-month groups were collapsed into one group, and the 27- to 29-month and 30- to 32-month groups were collapsed into one group.) 2 Except for the collapsed age groups, the number of children in each age group is adequate (that is, between 108 and 140). For geographic region, the representativeness of the normative samples varies by age; at some ages, the norms closely approximate the U.S. population, while at other ages, they do not. The norms appear representative for gender, race (European American, African American, and Asian American), and parent occupation.

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2 Thus, the number of children sampled does not correspond to the number of children at four ages (21–23 months, 24–26 months, 27–29 months, and 30–32 months) on whom norm conversions are based.
Reliability

Three types of reliability information are presented in the MSEL manual: internal consistency, test– retest, and interscorer. Internal consistency of each subtest was estimated by coefficient alpha for four age groups: At 24–30 months, alpha ranged from .82 to .88; at 36–42 months, alpha ranged from .87 to .90; at 48–54 months, alpha ranged from .84 to .89; and at 60–66 months, alpha ranged from .74 to .83. Thus, the internal consistency of the subtests is generally insufficient for making important educational decisions about children.

Stability was assessed by retesting 59 children; the average test–retest interval was two weeks. Stabilities are reported for each subtest at three age groups: 24 months ($N = 12; r_{xx} = .98–.99$); 30–42 months ($N = 16; r_{xx} = .86–.98$); and 48–66 months ($N = 31; r_{xx} = .83–.94$). Thus, the MSEL is generally stable enough to use in making important educational decisions about children.

Interscorer reliability was estimated for each subtest for three age groups: 24 months ($N = 12$), 30 months ($N = 14$), and 36–48 months ($N = 18$). All coefficients equaled or exceeded .98. Thus, MSEL appears to have excellent interscorer reliability.

Validity

Although test items seem to represent the target domains, the author presents no specific information about how specific test items were selected. Therefore, test users must judge the MSEL's content for themselves. Information about the criterion-related validity of the
MSEL is incomplete. However, it appears that the LRO and LEO subtests correlated highly with the Auditory Comprehension and Verbal Ability subtests of the Preschool Language Assessment ($r_{xx}$ from .78 to .95 for two age groups of children). The VEO subtest correlates highly ($r_{xy} = .94$) with the Fine Motor subtest of the Brigance Inventory of Early Development with one group of children and with the Developmental Test of Visual–Motor Integration ($r_{xy} = .81$) with a different group of children. Finally, there is some evidence that the MSEL predicts subsequent performance on the Metropolitan Readiness Tests after a one-year interval.

Because the MSEL consists of four independent subtests and because no total score is used, we would expect some evidence of factor independence of the subtests. No factor analyses were conducted; rather, subtest intercorrelations were examined. However, in our opinion, the correlations do not suggest subtest independence. Strikingly absent from the manual is any indication that the MSEL is capable of identifying learning disability and mental retardation in children between 21 and 63 months of age.

Summary

The MSEL is an individually administered, norm-referenced test intended for use with children between 21 and 63 months of age. The test has four subtests: Visual Receptive Organization, Visual Expressive Organization, Language Receptive Organization, and Language Expressive Organization. The MSEL is constructed as an age test, but test ages can be converted to normalized $T$-scores. The technical information that appears in the test manual is very incomplete. With that caveat, the MSEL's norms appear to be
generally representative. Interscorer reliability is excellent, and stability is generally good. However, internal consistency is generally suitable only for screening purposes. The information related to content validity presented in the MSEL manual is inadequate, although our inspection of the items suggests content very similar to that of other developmental measures. This similarity is borne out by extremely high concurrent validity coefficients with measures such as the Preschool Language Assessment and the Brigance Inventory of Early Development. Other validity coefficients are more modest. No evidence of MSEL's ability to identify children with learning disabilities or mental retardation is presented in the test manual.