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| --- | --- | --- | --- | --- | --- | --- | --- |
| Supplemental Online Material Table 1. Descriptive Statistics by 12, 24, 36, and 48 Month Bins Prior to Missing Data Treatment. | | | | | | | |
| Instrument | Variables | Score | *M* | *SD* | *Min* | *Max* | *N* |
| 12 Months of Age |  |  |  |  |  |  |  |
| ECI | Gestures | Rate | 1.8 | 1.2 | 0.0 | 6.0 | 338 |
| ECI | Vocalizations | Rate | 3.7 | 2.4 | 0.0 | 12.2 | 338 |
| ECI | Single Words | Rate | 0.1 | 0.3 | 0.0 | 2.7 | 338 |
| ECI | Multiple Words | Rate | 0.0 | 0.0 | 0.0 | 0.2 | 338 |
| ECI | Total Communication | Rate | 5.7 | 2.8 | 0.0 | 15.3 | 338 |
| CDI WG | Words Understood | Count | 106.3 | 93.0 | 0.0 | 396.0 | 122 |
| CDI WG | Words Produced | Count | 12.2 | 18.1 | 0.0 | 91.0 | 122 |
| CDI WG | Total Gestures | Count | 27.9 | 12.0 | 0.0 | 63.0 | 122 |
| PLS-4 | Auditory Comprehension | Raw | 20.2 | 1.9 | 16.0 | 28.0 | 114 |
|  |  | Standard | 104.0 | 15.7 | 63.0 | 149.0 | 114 |
| PLS-4 | Express. Communication | Raw | 22.9 | 2.7 | 17.0 | 30.0 | 114 |
|  |  | Standard | 109.1 | 11.5 | 76.0 | 137.0 | 114 |
| PLS-4 | Total Language | Raw | 43.1 | 4.1 | 34.0 | 56.0 | 114 |
|  |  | Standard | 107.3 | 13.7 | 76.0 | 139.0 | 114 |
| 24 Months of Age |  |  |  |  |  |  |  |
| ECI | Gestures | Rate | 1.7 | 1.1 | 0.0 | 5.5 | 339 |
| ECI | Vocalizations | Rate | 3.3 | 2.1 | 0.0 | 9.8 | 339 |
| ECI | Single Words | Rate | 2.8 | 2.2 | 0.0 | 10.0 | 339 |
| ECI | Multiple Words | Rate | 1.0 | 1.5 | 0.0 | 7.8 | 339 |
| ECI | Total Communication | Rate | 13.6 | 7.2 | 0.3 | 36.2 | 339 |
| CDI WS | Words Produced | Count | 189.8 | 164.0 | 1.0 | 674.0 | 165 |
| CDI WS | Mean Length of Utterance | Count | 2.4 | 1.5 | 1.0 | 7.3 | 165 |
| PLS-4 | Auditory Comprehension | Raw | 27.2 | 4.3 | 19.0 | 40.0 | 163 |
|  |  | Standard | 99.9 | 14.2 | 67.0 | 137.0 | 163 |
| PLS-4 | Express. Communication | Raw | 29.4 | 4.1 | 20.0 | 43.0 | 163 |
|  |  | Standard | 102.6 | 13.2 | 73.0 | 135.0 | 163 |
| PLS-4 | Total Language | Raw | 56.6 | 7.7 | 40.0 | 80.0 | 163 |
|  |  | Standard | 101.5 | 14.2 | 69.0 | 138.0 | 163 |
| 36 Months of Age |  |  |  |  |  |  |  |
| ECI | Gestures | Rate | 1.4 | 1.1 | 0.0 | 5.0 | 266 |
| ECI | Vocalizations | Rate | 2.0 | 1.6 | 0.0 | 8.8 | 266 |
| ECI | Single Words | Rate | 3.5 | 1.8 | 0.0 | 8.8 | 266 |
| ECI | Multiple Words | Rate | 4.1 | 2.8 | 0.0 | 13.5 | 266 |
| ECI | Total Communication | Rate | 22.5 | 9.5 | 0.3 | 52.5 | 266 |
| PLS-4 | Auditory Comprehension | Raw | 39.2 | 5.7 | 23.0 | 54.0 | 118 |
|  |  | Standard | 101.3 | 13.5 | 55.0 | 130.0 | 118 |
| PLS-4 | Express. Communication | Raw | 40.6 | 5.2 | 24.0 | 54.0 | 118 |
|  |  | Standard | 101.1 | 12.9 | 70.0 | 145.0 | 118 |
| PLS-4 | Total Language | Raw | 79.7 | 10.3 | 47.0 | 107.0 | 118 |
|  |  | Standard | 101.2 | 14.3 | 62.0 | 149.0 | 118 |
| PPVT-4 | Receptive Vocabulary | Raw | 42.4 | 20.4 | 3.0 | 106.0 | 81 |
|  |  | Standard | 98.0 | 16.4 | 57.0 | 139.0 | 81 |
| EI-IGDI | Picture Naming (v.1.0) | Count | 10.2 | 4.8 | 0.0 | 21.0 | 101 |
| TOPEL | Print Knowledge | Raw | 5.1 | 4.7 | 0.0 | 23.0 | 56 |
|  |  | Standard | 94.1 | 9.6 | 81.0 | 125.0 | 56 |
| TOPEL | Definitional Vocabulary | Raw | 24.7 | 15.5 | 0.0 | 55.0 | 53 |
|  |  | Standard | 87.7 | 19.0 | 55.0 | 127.0 | 53 |
| TOPEL | Phonological Awareness | Raw | 6.8 | 5.0 | 0.0 | 17.0 | 49 |
|  |  | Standard | 88.5 | 15.0 | 66.0 | 117.0 | 49 |
| 48 Months of Age |  |  |  |  |  |  |  |
| PPVT-4 | Receptive Vocabulary | Raw | 60.7 | 22.5 | 6.0 | 124.0 | 110 |
|  |  | Standard | 99.0 | 16.1 | 55.0 | 141.0 | 110 |
| EI-IGDI | Picture Naming (v.1.0) | Count | 14.7 | 5.7 | 0.0 | 30.0 | 127 |
| TOPEL | Print Knowledge | Raw | 10.8 | 8.5 | 0.0 | 35.0 | 84 |
|  |  | Standard | 96.0 | 14.2 | 78.0 | 137.0 | 84 |
| TOPEL | Definitional Vocabulary | Raw | 41.0 | 14.5 | 6.0 | 67.0 | 80 |
|  |  | Standard | 97.3 | 16.4 | 59.0 | 126.0 | 80 |
| TOPEL | Phonological Awareness | Raw | 13.1 | 5.3 | 0.0 | 27.0 | 69 |
|  |  | Standard | 96.4 | 14.6 | 59.0 | 134.0 | 69 |
| Note. Abbreviations are as follows: ECI = Early Communication Indicators, CDI = MacArthur-Bates Communicative Development Inventories (WG = Words and Gestures, WS = Words and Sentences), PLS-4 = Preschool Language Scale, PPVT-4 = Peabody Picture Vocabulary Test, EL-IGDI = Preschool Individual Growth and Development Indicators, TOPEL = Test of Preschool Early Literacy. | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Supplemental Online Material Table 2. Mean, *SD*, Concurrent, and Predictive Validity Correlations Based on FIML Estimation. | | | | | | | | | | | | | | | | | |
|  |  |  | **Predictor Measures** | | | | | | | | | | | | | | |
|  |  |  | **12 Months ECI** | | | | | **24 Months ECI** | | | | | **36 Months ECI** | | | | |
|  |  |  | **TC** | **G** | **V** | **SW** | **MWa** | **TC** | **G** | **V** | **SW** | **MW** | **TC** | **G** | **V** | **SW** | **MW** |
| **Criterion** |  | **M** | 5.6 | 1.8 | 3.6 | 0.1 | 0.0 | 13.8 | 1.7 | 3.4 | 2.9 | 1.0 | 22.6 | 1.3 | 1.8 | 3.4 | 4.1 |
| **Measures** | **M** | **SD** | 2.7 | 1.2 | 2.3 | 0.3 | -- | 7.2 | 1.1 | 2.1 | 2.1 | 1.5 | 9.7 | 1.1 | 1.5 | 1.8 | 2.9 |
| PLS-4 Total\_12 | 43.4 | 4.2 | 0.25 | 0.04 | 0.21 | 0.21 | -- |  |  |  |  |  |  |  |  |  |  |
| PLS-4 AC\_12 | 20.3 | 1.9 | **0.31** | 0.11 | 0.25 | 0.16 | -- |  |  |  |  |  |  |  |  |  |  |
| PLS-4 EC\_12 | 23.1 | 2.8 | 0.16 | -0.01 | 0.15 | 0.20 | -- |  |  |  |  |  |  |  |  |  |  |
| CDI WG WU\_12 | 108.4 | 93.4 | 0.11 | 0.07 | 0.08 | 0.06 | -- |  |  |  |  |  |  |  |  |  |  |
| CDI WG WP\_12 | 11.3 | 17.6 | 0.28 | -0.03 | 0.23 | **0.30** | -- |  |  |  |  |  |  |  |  |  |  |
| CDI WG TG\_12 | 27.8 | 11.7 | **0.32** | 0.09 | **0.30** | 0.08 | -- |  |  |  |  |  |  |  |  |  |  |
| PLS-4 Total\_24 | 57.2 | 7.7 | 0.18 | -0.05 | 0.19 | 0.10 | -- | **0.33** | 0.00 | -0.16 | 0.29 | 0.28 |  |  |  |  |  |
| PLS-4 AC\_24 | 27.5 | 4.3 | 0.15 | -0.01 | 0.14 | 0.09 | -- | 0.24 | 0.00 | -0.13 | 0.23 | 0.20 |  |  |  |  |  |
| PLS-4 EC\_24 | 29.7 | 4.1 | 0.19 | -0.06 | 0.21 | 0.09 | -- | **0.39** | 0.01 | -0.15 | **0.33** | **0.31** |  |  |  |  |  |
| CDI WS WP\_24 | 198.4 | 164.6 | 0.18 | 0.02 | 0.09 | 0.12 | -- | **0.35** | -0.06 | -0.28 | 0.25 | **0.37** |  |  |  |  |  |
| CDI WSMLU\_24 | 2.4 | 1.5 | 0.09 | -0.14 | 0.13 | 0.06 | -- | 0.23 | 0.06 | -0.14 | 0.11 | 0.27 |  |  |  |  |  |
| PLS-4 Total\_36 | 79.1 | 10.4 | **0.42** | 0.21 | **0.38** | **0.34** | -- | **0.42** | -0.07 | -0.16 | **0.36** | **0.43** | **0.35** | -0.06 | -0.08 | 0.08 | **0.44** |
| PLS-4 AC\_36 | 39.0 | 5.7 | **0.37** | 0.13 | **0.35** | **0.30** | -- | **0.38** | -0.09 | -0.09 | **0.31** | **0.38** | 0.25 | -0.09 | -0.07 | 0.04 | **0.35** |
| PLS-4 EC\_36 | 40.1 | 5.4 | **0.44** | 0.27 | **0.38** | **0.34** | -- | **0.42** | -0.04 | -0.21 | **0.37** | **0.43** | **0.42** | -0.02 | -0.10 | 0.11 | **0.50** |
| PPVT-4Raw\_36 | 38.5 | 21.5 | **0.33** | 0.13 | 0.29 | **0.37** | -- | **0.30** | -0.04 | -0.12 | **0.29** | **0.35** | 0.16 | -0.21 | 0.16 | 0.07 | 0.19 |
| EL-IGDI PicN\_36 | 10.0 | 5.0 | 0.12 | -0.07 | 0.12 | 0.08 | -- | 0.25 | -0.23 | 0.14 | 0.14 | 0.23 | 0.10 | **-0.41** | -0.23 | -0.15 | **0.30** |
| TOPEL\_PK\_36 | 5.1 | 4.8 | 0.24 | -0.06 | 0.16 | 0.18 | -- | 0.11 | 0.06 | -0.23 | 0.13 | 0.17 | 0.20 | -0.05 | -0.04 | -0.01 | 0.25 |
| TOPEL\_DV\_36 | 22.9 | 15.8 | -0.20 | -0.09 | -0.20 | 0.09 | -- | 0.22 | -0.04 | -0.17 | -0.02 | **0.33** | 0.12 | -0.24 | -0.11 | -0.25 | 0.22 |
| TOPEL\_PA\_36 | 5.9 | 5.3 | 0.09 | 0.04 | 0.03 | 0.16 | -- | 0.20 | **0.31** | **-0.35** | -0.08 | 0.29 | -0.03 | -0.10 | 0.13 | **-0.34** | 0.12 |
| PPVT-4Raw\_48 | 55.5 | 24.3 | -0.04 | -0.11 | 0.02 | 0.14 | -- | **0.32** | -0.06 | -0.23 | 0.21 | **0.36** | **0.32** | **-0.34** | -0.20 | -0.15 | **0.39** |
| EL-IGDI PicN\_48 | 14.5 | 5.6 | 0.07 | 0.09 | 0.07 | 0.01 | -- | 0.18 | 0.01 | -0.14 | 0.15 | 0.18 | 0.19 | -0.16 | -0.22 | -0.12 | **0.32** |
| TOPEL\_PK\_48 | 9.9 | 8.9 | 0.00 | 0.03 | -0.01 | 0.15 | -- | **0.39** | -0.13 | -0.07 | **0.30** | **0.33** | 0.12 | -0.16 | -0.05 | -0.04 | 0.17 |
| TOPEL\_DV\_48 | 39.6 | 14.2 | -0.02 | -0.04 | 0.00 | 0.16 | -- | **0.39** | -0.04 | -0.23 | 0.25 | **0.40** | **0.34** | -0.19 | -0.13 | -0.07 | **0.37** |
| TOPEL\_PA\_48 | 12.8 | 5.7 | -0.20 | **-0.36** | -0.19 | 0.01 | -- | 0.28 | 0.06 | -0.25 | 0.28 | 0.11 | -0.04 | 0.01 | -0.22 | -0.21 | 0.07 |

Note. aCorrelations for ECI Multiple Words at 12 months were not computed due to a lack of variance at this age. Concurrent validity correlations are read in the shaded cells; predictive validity correlations in the non-shaded cells and read in the 12, 24, and 36 month columns. Correlations in bold are those that were moderately strong (ranging from *r* =.30 to .50). Abbreviations are as follows: PLS-4 = Preschool Language Scale, AC = Auditory Comprehension, EC = Expressive Communication CDI = MacArthur-Bates, WG = Words and Gestures, WS = Words and Sentences, WU = Words Understood, WP = Words Produced TG = Total Gestures, MLU = Mean Length of Utterance, PPVT-4 = Peabody Picture Vocabulary, EL-IGDI = Early Literacy-Individual Growth and Development Indicator, PicN = Picture Naming, TOPEL = Test of Preschool Early Literacy, PK = Print Knowledge, DV = Definitional Vocabulary, PA = Phonological Awareness, ECI = Early Communication Indicator, TC = Total Communication, G = Gestures, V = Vocalizations, SW = Single Words, MW = Multiple Words.