Executive Summary

Reading and math foundational skills that are developed during a child's early years are important as predictors of later academic skills and promoting success at later stages. Vast differences exist in young children's precursor reading and math skills (e.g., Clements 2004; Denton and West 2002; Denton, West, and Walston 2003), and gaps seen in academic performance between groups of young students based on demographic characteristics or initial skill level can persist across grades (Chatterji 2005; LoGerfo, Nichols, and Reardon 2006; Morgan, Farkas, and Wu 2007; Princiotta, Flanagan, and Germino Hausken 2006).

While there are some data documenting the academic performance of older students with disabilities and their typically developing peers from efforts such as state data collected in accordance with the Elementary and Secondary Education Act of 1965 (ESEA), as amended by the No Child Left Behind Act of 2001 (NCLB) and the National Assessment of Educational Progress (NAEP), less is known about the academic skills and skills growth of young children with disabilities.

The Pre-Elementary Education Longitudinal Study (PEELS), which is funded by the U.S. Department of Education, is examining the characteristics of children receiving preschool special education, the services they receive, their transitions across educational levels, and their performance over time on assessments of academic and adaptive skills. PEELS includes a nationally representative sample of 3,104 children with disabilities who were ages 3 through 5 when the study began in 2003-04. PEELS data were collected through several different instruments and activities, including direct one-on-one assessments of the children at five points in time.

While several comprehensive reports have been prepared using the PEELS data, this one is designed to address two specific research questions:

- How do children who received preschool special education services perform over time on assessments of receptive vocabulary and math skills?
- How does their receptive vocabulary and math performance vary over time by primary disability category?

Receptive Vocabulary Performance

Psychometrically Adapted and Shortened Version of the Peabody Picture Vocabulary Test III (PPVT-III adapted version)

- At age 3, children in PEELS had a mean score of 61,[1] and at age 10, children had a mean score of 113.

[1] Direct assessments are scored on different scales, so scores on PPVT-III cannot be compared to scores on Woodcock-Johnson III: Applied Problems. To develop the version of the PPVT-III used for PEELS, item response theory (IRT) proficiency scores were put on the publisher's *W*-ability scale through a linking process. As a result, the PPVT-III scores for the PEELS children can be compared to the national norming sample of the publisher (Dunn and Dunn 1997b). The linking procedure for PPVT was refined since the release of other PEELS reports, so comparisons of PPVT scores across PEELS reports should not be made.

- Children's growth on the PPVT-III (adapted version) decelerated, or slowed down, as the children got older, with scores for children at age 3 growing 12.9 points and scores for children at age 10 growing 1.4 points.

- At age 3, children with a speech or language impairment had a significantly higher mean on the PPVT-III (adapted version) than children with a developmental delay.[2] There were no statistically significant differences in growth at age 3 between disability groups, and the gap persisted at age 10 between children with a speech or language impairment and children with a developmental delay.

Math Performance

Woodcock-Johnson III: Applied Problems

- At age 3, children in PEELS had a mean score on Applied Problems of 362, and at age ten, children had a mean score of 488.

- Growth was decelerating, or slowing down, as the children got older, with scores for children at age 3 growing 32.1 points and scores for children at age 10 growing 4.3 points.

- Children with a speech or language impairment had significantly higher mean scores at age 3 than children with autism or a developmental delay. There were no statistically significant differences in growth at age 3 between disability groups. The gap between scores for children with speech or language impairments and children with a developmental delay persisted at age 10. Children with autism caught up to children with a speech or language impairment by age 10.

[2] The disability categories used for these analyses are based on the child's primary disability category in the first wave of data collection. For the purposes of these analyses, children remained in their initial primary disability category even if their classification status changed. Because of the small sample sizes for some disability categories, only the disability categories with sample sizes appropriate for the analyses (set at 40 children or more, which is justified by guidance from Muthén and Muthén 2002) were included: autism, developmental delay, and speech or language impairment.