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Data Collected Through the ECLS-K

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Module Objectives

- Describe the data collected in the ECLS-K using
  - Direct and indirect assessments of
    - Cognitive knowledge and skills
    - Socioemotional development
    - Physical development
- Highlight some design issues that should be considered when analyzing ECLS-K data

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ECLS-K Assessment Goals

- Measure knowledge, skills, and development at particular points in time as well as growth across time
- Reflect typical school curricula for the particular grade of interest
- Inclusive and appropriate for children with varying needs and abilities
  - Accommodations were made for children with disabilities
  - Very small subset of children were excluded from the direct assessments
  - Children excluded from the direct assessments were still included in other aspects of the study
- Administer within a limited amount of time

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The ECLS-K Assessment

- *Domains*
  - Cognitive knowledge and skills
  - Socioemotional development
  - Physical development
- Design Issues and Errata

Content Areas

- Reading
- Mathematics
- General Knowledge (kindergarten, 1)
- Science (3, 5, 8)

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Development of the Direct Assessment

- No one existing measure met the study goals
- Assessments were developed specifically for use in the ECLS-K
- To develop psychometrically sound assessments
  - Review of grade-level curricula and standards and consultation with child development and content area experts
  - Development of an assessment framework that guided the construction of the assessments for each grade
  - Selection of test items: used existing items when possible, developed new items when necessary
    - Items were tested and evaluated
   - Items that performed the best were selected for final assessments

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Format of the Direct Assessment

- Two-stage adaptive design
  - First stage routing test
  - Second stage tailored to demonstrated level of ability
- Un-timed administration, though the assessments were designed to take about an hour
- Individualized, computer-assisted assessments using easels and worksheets (kindergarten, 1, 3, 5)
- Small group, paper and pencil (8)

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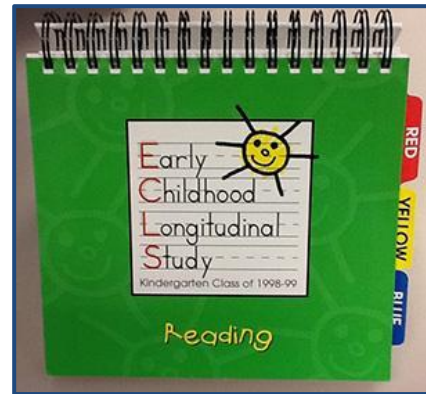
Direct Assessment Routing

Based on Language in Kindergarten and First Grade
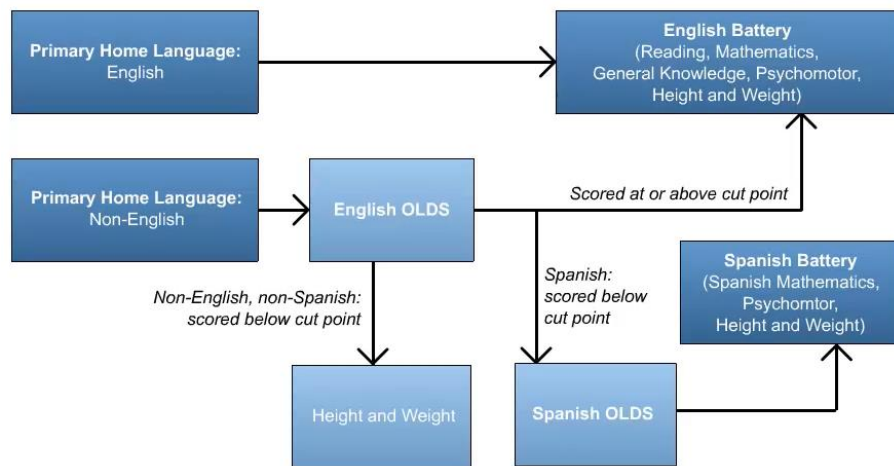
Direct Assessment Routing (Continued)

Based on Language in Kindergarten and First Grade

Type of Score	Description
Item-Response-Theory (IRT)-based Scores: Theta, Scale Score, and T-score	Reading (all rounds) Mathematics (all rounds) General Knowledge (kindergarten, 1) Science (3, 5, 8)
Proficiency Probability (IRT-based)	Reading Proficiency (Probability): levels 1-10 (all rounds) Mathematics Proficiency (Probability): levels 1-9 (all rounds) Highest Reading Proficiency Level Mastered (all rounds) Highest Mathematics Proficiency Level Mastered (all rounds)
Cluster Scores	Reading Print Familiarity (kindergarten, 1) Reading Decoding Text (3, 5)
Number Right	Reading Routing Test, Number Right (all rounds) Mathematics Routing Test, Number Right (all rounds) General Knowledge Routing Test, Number Right (kindergarten, 1) Science Routing Test, Number Right (3, 5, 8)

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Direct Assessment Scores

Reading Proficiency Probabilities
- Level 1: (Letter recognition)
- Level 2: (Beginning sounds)
- Level 3: (Ending sounds)
- Level 4: (Sight words)
- Level 5: (Words in context)
- Level 6: (Literal inference)
- Level 7: (Extrapolation)
- Level 8: (Evaluation)
- Level 9: (Evaluating non-fiction)
- Level 10: (Evaluating complex syntax)

Direct Assessment Scores (Continued)

Mathematics Proficiency Probabilities
- Level 1: (Number and shape)
- Level 2: (Relative size)
- Level 3: (Ordinality and sequence)
- Level 4: (Addition and subtraction)
- Level 5: (Multiplication and division)
- Level 6: (Place value)
- Level 7: (Rate and measurement)
- Level 8: (Fractions)
- Level 9: (Area and volume)

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Indirect Assessment

Academic Ratings Scale (ARS)
- List of grade-level knowledge and skills
- Classroom teachers asked to provide information for each ECLS-K child in his or her classroom as to whether the child demonstrated proficiency on the focal skill
- Information in the areas of
  - Language and Literacy (kindergarten, 1, 3, 5, 8)
  - Mathematical Thinking (kindergarten, 1, 3, 5, 8)
  - General Knowledge (kindergarten, 1)
  - Social Studies (3)
  - Science (3, 5, 8)

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Indirect Assessment (Continued)

Academic Ratings Scale (ARS)
- Data file includes both item-level data for each question included in the ARS and scale scores
- Information on children's abilities at a given point in time, not necessarily over time
- Although the items are similar across grades, the actual items reflect performance criteria that increase in difficulty from one time point to the next
- ARS scores are placed on different metrics relative to the item difficulty in a given grade

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Direct and Indirect Assessments

Direct assessments
- Student survey (3, 5, 8)

Indirect assessments
- Parent-provided information (kindergarten, 1)
- Teacher-provided information (kindergarten, 1, 3, 5)

Socioemotional
Development

Direct Assessment

Self-Description Questionnaire (SDQ)

Third, Fifth, and Eighth Grades

Socioemotional Development

Description	Range
Perceived Interest/Competence Reading	1-4
Perceived Interest/Competence Math	1-4
Perceived Interest/Competence All Subjects*	1-4
Perceived Interest/Competence Peer Relations*	1-4
Externalizing Problems*	1-4
Internalizing Problems	1-4

*Not included in the eighth-grade data collection

Direct Assessment (Continued)

Self-Concept and Locus of Control

Socioemotional Development

Eighth Grade

- Children were presented with questions about themselves, which they answered on a 4-point scale ranging from *strongly agree* to *strongly disagree*
- Scores are standardized to a mean of 0 and a standard deviation of 1
- Self-Concept score: Based on 7 items; a higher score indicates a more positive self-concept
- Locus of Control score: Based on 8 items; a higher score indicates a greater perception of control over one's life

Indirect Assessment

- Parent and teacher ratings of child's social skills and behaviors
- Frequency ratings ranging from "Never" to "Very Often"
- Similar constructs were measured but the questions were tailored to the respondent and context
- Referred to as the Social Rating Scale (SRS)
- Some items were taken or adapted with permission from the instrument *Social Skills Rating System: Elementary Scale A* (Gresham, F. M. and Elliott, S.N. 1990) and some developed specifically for the ECLS-K

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Indirect Assessment (continued)

SRS Teacher Subscales (kindergarten, 1, 3, 5)

- Scores on each scale, which are mean ratings of items included in the scale, are included in the data file
- Self-control
- Interpersonal Skills
- Externalizing Problem Behaviors
- Internalizing Problem Behaviors
- Peer Relations (3, 5): Self-control and interpersonal subscales combined
- Approaches to Learning

Access the supplementary dataset with item-level approaches to learning data

Read information about how to obtain access to the copyrighted SRS items

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Indirect Assessment (Continued)

SRS Parent Subscales (kindergarten, 1)
- Scores on each scale, which are mean ratings of items included in the scale, are included in the data file
- Self-control
- Social Interaction
- Impulsivity/Overactivity
- Sadness/Loneliness
- Approaches to Learning

Socioemotional Development

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Direct Assessment

Physical
- Weight
- Height
- Body Mass Index (BMI)

Physical Development

Direct Assessment (Continued)

Motor Skills (Fall kindergarten only)
- Fine motor skills composite variable, score ranges from 0 to 9
  - Copy basic figures (five items)
  - Draw a person
  - Construct a gate with wooden blocks
- Gross motor skills composite variable, score ranges from 0 to 8
  - Balance on each foot
  - Hop on one foot
  - Skip
  - Walk backward in a straight line

Physical Development

Design Issues That Should Be Considered in Analyses

Timing of Assessment
- Not all children were assessed on the same day at each round of data collection
  - Most of the **Fall** assessments were conducted between early October and mid-November
  - Most of the **Spring** assessments were conducted between mid-April and late May
  - Children assessed earlier in a data collection round tended to have lower achievement scores than children assessed on a later date in that data collection round

Age at Time of Assessment
- Children were not all the same age at the time of assessment

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Design Issues That Should Be Considered in Analyses (Continued)

Elapsed Time Between Assessments
- The elapsed time between ECLS-K assessments was not the same for all children
- Children with more elapsed time between assessments tended to show greater achievement gains than those with shorter elapsed times

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Errata

- An incorrect version of the theta scores was included in the original release of the *Kindergarten Through Eighth Grade Full Sample Public-Use Data and Documentation (2009-005)* data file.
- Researchers interested in using the theta scores in their analyses should review the *Errata Sheet: ECLS-K K-8 Full Sample Public-Use Data File (NCES 2010-052) March 2010*. This errata provides the correct version of the theta scores for rounds 1, 2, 3, 4, 5 and 6. The Round 7 thetas included in the *ECLS-K K-8 Full Sample Public-Use Data File (NCES 2009-005)* are correct; however, for ease of use, they are included in the errata data file.
- Consult the errata sheet and data file

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Module Summary

- Described the data collected in the ECLS-K using
  - Direct and indirect assessments of
    - Cognitive knowledge and skills
    - Socioemotional development
    - Physical development
- Highlighted some design issues that should be considered when analyzing ECLS-K data

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Modules Resources

- [Development of the direct cognitive assessments used through the ECLS-K](#) (see the study psychometric reports under the Technical/Methodological heading)
- [Self-Description Questionnaire (SDQ)](#)
- [Supplementary SDQ dataset](#)
- [Copyrighted SRS items](#)
- [Errata sheet and data file](#)