

Psychometric Properties of the Early Development Instrument (EDI)

There is a growing body of evidence that shows that the Early Development Instrument (EDI) is a psychometrically good indicator of child well-being.

It's been found to have good reliability.^{1, 2}

- Internal consistency is high³ between items within the EDI domains (.84 - .96)
- Test-retest correlations are high when administered twice on same children (.82 - .94)
- Inter-rater reliability moderate-high between kindergarten & child care teachers depending on the domain (.53-.80)

The EDI has also been found to be a valid measure.⁴

- Concurrent validity has been found generally moderate when comparing the EDI domains to similar domains tested with direct assessment using three tools.^{1, 2}

Below are the correlations between the direct assessments and relevant EDI domains.

- FirstSTEP Screening Test For Evaluating Preschoolers: Measures cognitive, language and social emotional skills - Correlation with EDI is: .65 social competence; .73 emotional maturity; .58 language and cognitive development
- Peabody Picture Vocabulary Test (PPVT): Measures receptive vocabulary – Correlation with EDI is: .57 Communications
- Who AM I: Measures non-verbal language – Correlation with EDI is: .46 language and cognitive
- Predictive validity:
 - High from kindergarten to first grade.⁵
 - EDI has been found to predict basic skills performance four-years after kindergarten. Groups of children vulnerable on any one of the EDI scales are more likely to perform below expectation in all academic areas in grade 4.⁶

¹ Janus, M., Offord, D., *Development and psychometric properties of the Early Development Instrument (EDI): A measure of children's school readiness*. Canadian Journal of Behavioral Sciences, 2007. 39(1): p. 1-22.

² Janus, M., Brinkman, et al., *The Early Development Instrument: A Population-Based Measure for Communities. A Handbook on Development, Properties, and Use.*, Offord Centre for Child Studies, 2007.
<http://www.offordcentre.com/readiness/pubs/publications.html>.

³ Standard: low is less than .5; moderate correlation is between .5 - .7; and large is more than

⁴ Concurrent validity assesses an instruments performance in comparison with other previously validated instruments and predictive validity is the tools ability to predict later outcomes.

⁵ Forget-Dubois, N., Lemelin, J., Boivin, M., Dionne, G., *Predicting Early School Achievement with the EDI: A Longitudinal Population-Based Study*. Early Education and Development. 2007. 18(3), 405-426.



No single tool is perfect. Concerns that are sometimes raised about the EDI include:

- **Observational data:** Though direct assessments may be better for screening and diagnostic purposes, the EDI, as an observational assessment, has been found to be valid, reliable and feasible for the purpose of looking at an entire population of children.⁷
- **Teacher reported data:** The reliability and validity results, as highlighted above, indicate that, on average, teacher reports are an acceptable method for assessing a population of children. Concerns are occasionally raised about one type of potential teacher bias referred to as a “halo” effect where teachers give students from wealthy families or living in affluent neighborhoods higher ratings than they deserve, or, conversely, a reverse “halo”, discounts scores for students from low-income families or neighborhoods. Several pieces of evidence dispute this contention. First, the variation in developmental scores by income is similar in teacher observations using the EDI, and in direct assessments conducted by outside observers.⁸ Second, if teachers were biased by student’s income status, one would expect a close to perfect association of neighborhood SES and vulnerability, which is indeed not the case.⁹ In most communities there are so called “off-diagonal” neighborhoods, which have low SES yet high EDI scores or vice versa. Further supporting the acceptability of teacher reported data are studies that have found that the EDI is associated with other child characteristics in a predictable manner. For example, large group averages consistently show a gender difference (boys have lower scores than girls).¹⁰ This is a well-established developmental phenomenon, and the fact that the EDI scores replicate it supports the accuracy of teacher ratings.
- **Validity across different groups of children:** Though more research is needed in this area, particularly with children in the US, a growing body of research indicates no systematic bias across diverse groups of children (gender, ESL, or aboriginal status).¹⁰

⁶ D’Angiulli, A., Warburton, W., Dahinten, S., Hertzman, C., (2009) . PLoS ONE 4(11): Population-Level Associations between Preschool Vulnerability and Grade-Four Basic Skills. e7692.doi:10.1371/journal.pone.0007692

⁷ Guhn, M., Janus M., Hertzman, C. (2007). Translating school readiness assessment into community actions and policy planning: The Early Development Instrument, Introduction to the Special Issue. *Early Education and Development*, 18(3), 369-374.

⁸ Janus, M. and E. Duku (2007). "The School Entry Gap: Socioeconomic, Family, and Health Factors Associated with Children's School Readiness to Learn." *Early Education and Development* 18(3): 375-403.

⁹ Raos, R. & Janus, M. (2007, April). *Neighbourhood-level association between child development and socioeconomic risk in four cities in Canada*. Poster presentation, 19th Annual Research Day, Department of Psychiatry and Behavioural Neurosciences, McMaster University, Hamilton, April, 2007.

¹⁰ Guhn, M., Gadermann, A., Zumbo, B. (2007). "Does the EDI measure school readiness in the same way across different groups of children?" *Early Childhood Education Journal* 18(3): 453-472.



- **Teacher receptivity to EDI:** Anonymous teacher surveys have consistently found that teachers do not have difficulty in completing the checklists and that the experience of reflecting on each child’s development has been a positive experience.
- **Timing of data collection:** The EDI is typically completed between the third and fifth month of the school year. This allows teachers time to get to know their children and it gives children a period of catch up allowing for a more accurate marker of their future success.

Selection of a tool is largely dependent on the specific goals for its use. For many early childhood advocates and policymakers at the local, state and national level, their primary goal is to have a uniform, holistic, population-based measure of early childhood that can be feasibly used for planning, improvement and accountability at the state and local level.. When this is the primary goal, EDI is an ideal (if not unique) tool because it has been specifically designed for this purpose and meets the following specific set of criteria essential to population measurement:

- Population focus with a relatively short tool that is easy for teachers to use
- Holistic measure covering all key developmental domains
- Designed to be used in the kindergarten classroom which is the first point of near-universal access to young children
- Provides mechanism to aggregate down to a neighborhood level
- Provides national and local normative cutoffs from which to compare across communities and compare over time
- Good validity and reliability with a strong and on-going program of research
- Offers a strong set of tested tools and supports to ensure utility and consists of key partnerships and shared learning across national pilot sites

