

STABILITY AND RELIABILITY OF THE EARLY DEVELOPMENT INSTRUMENT: A POPULATION-BASED MEASURE FOR COMMUNITIES (EDI)

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INTRODUCTION:

The Early Development Instrument: A Population-based Measure for Communities (EDI) was developed to assess the readiness to learn in the school environment of children at the junior and senior kindergarten level, that is, just before entering grade one.

It is a teacher-completed tool which measures school readiness to learn in five domains: physical health and well-being, social competence, emotional maturity, language and cognitive development, and communication skills and general knowledge. The instrument also collects information on child demographic variables as well as variables related to the child's school based designation, such as English as a Second Language (ESL), Special Needs (SN) and other pre-school variables.

In the 1998/99 school year the EDI was tested for cultural validity and hence after implemented in several communities across Canada. The psychometric properties of the EDI are reported elsewhere (Janus, Willms, and Offord).

Test reliability refers to consistency of measurement, the extent to which a test yields the same results for the same individual over time. As with every instrument, the EDI's consistency or reliability over time is very important.

The aim of this study is to look at the consistency of the EDI measures over time and secondly to look at the reliability of the teachers (observers) in administering the EDI.

METHODS:

Data on school readiness to learn were collected in the spring of 2003 with the Early Development Instrument (EDI) across Canada. Among these, data were collected again

in approximately two weeks after the initial implementation in 2 communities – Saskatchewan and Hamilton - using both the paper version and electronic version of the EDI respectively. For comparative reasons, data from the 1999 implementation for a study group from Halton was included.

Test retest reliability was assessed using Pearson correlation coefficient. Intra-rater or within-teacher reliability was assessed using the intra-class correlation coefficient.

RESULTS:

Table 1 Characteristics of the samples

Characteristic	Saskatchewan	Hamilton	Halton
Year of data collection	2003	2003	1999
Type of community	Rural	Urban	Urban – rural Mix
# school divisions or boards	1	1	3
# schools involved	5	10	5
# teachers	5	10	5
# children	72	155	112
Instruments used	Paper version	Electronic and Paper versions	Paper version
Time between data collection	2 weeks	3 to 5 weeks	3 to 4 weeks

Table 2: Descriptive statistics for the samples

Variable	Halton (N=112)	Saskatchewan (N=72)	Hamilton (N=155)	2003 SK Cohort (N=70,528)
% Females	50.9	44.4	47.7	48.7
Mean age	5.7	6.06	5.85	5.67
% E/FSL status	5.9	0.0	21.3	12.9
% Special needs	*	4.2	8.4	2.1
% Aboriginal status	*	12.5	0.6	5.4
% early intervention	*	6.9	11.6	6.4
% non-parental care	*	30.6	32.9	31.1
% part-time preschool	*	61.1	7.7	31.7
% junior kindergarten	*	8.3	79.4	36.7

- *data not available*

Table 3: Correlations between test and re-test

Outcome	Halton (N=112)	Saskatchewan (N=72)	Hamilton (N=151)
Physical health and well-being	0.82	0.92	0.90
Social competence	0.93	0.94	0.92
Emotional maturity	0.89	0.76	0.87
Language and cognitive development	0.82	0.96	0.94
Communication skills and general knowledge	0.94	0.96	0.91

Table 4: Mean intra-teacher reliability for Saskatchewan (N=5)

Outcome	Mean	Minimum	Maximum
Physical health and well-being	0.86	0.54	0.97
Social competence	0.92	0.72	1.00
Emotional maturity	0.70	0.18	0.96
Language and cognitive development	0.95	0.87	0.98
Communication skills and general knowledge	0.93	0.85	0.99

Table 5: Mean intra-teacher (or inter-instrument) reliability for Hamilton (N=9)

Outcome	Mean	Minimum	Maximum
Physical health and well-being	0.84	0.37	0.95
Social competence	0.87	0.56	1.00
Emotional maturity	0.85	0.72	1.00
Language and cognitive development	0.82	0.50	0.97
Communication skills and general knowledge	0.87	0.38	0.98

CONCLUSIONS:

- The results from the study showed that the EDI test retest reliability was excellent with correlations varying from 0.76 for the Emotional Maturity domain to 0.96 for the Communication and General knowledge domain which are consistent with earlier findings. These results were also confirmed using the electronic version of the EDI and the correlations varied from 0.86 for Emotional Maturity to 0.93 for

Language and Cognitive Development. These were also comparable to the initial correlations which ranged from 0.82 to 0.94.

- Intra-teacher or observer reliability is very high, varying from a mean of 0.70 to 0.95 and indicates that there is little variation within teachers.
- Inter-instrument was also high indicating the electronic version of the EDI is as reliable as the paper version.
- The reliability of the EDI has remained stable over time and for different samples with differing characteristics.

REFERENCES:

Streiner DL, Norman GR (1995), *Health Measurement Scales: A Practical Guide to Their Development & Use*, Oxford University Press.

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