

The Nova Scotia Early Development Instrument (EDI) Report 2013-2015



EARLY DEVELOPMENT INSTRUMENT

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1. Developmental Health at School Entry

Children are born ready to learn. A child's neurosystem is pre-programmed to develop various skills and neuropathways, depending on the experiences it receives. While a majority of Canadian children grow up in positive, loving, and nurturing environments, a considerable percentage enter Grade 1 with developmental skills that make them vulnerable for embarking on sub-optimal life trajectories.

During children's early years, developmental domains are closely intertwined with each other, and skills, behaviours, and abilities that contribute to children's successful school adjustment reflect the child's health. What once has been narrowly called "school readiness," is now understood as a broader concept, encompassing all developmental areas. Children with optimal developmental health are those who adjust well to new situations, are in good physical and mental health, enjoy learning at their own pace, and have good peer relations.

2. What is the EDI?

The Early Development Instrument (EDI, Janus & Offord 2007) measures *children's developmental health* at school entry. It is a teacher-completed questionnaire used to measure children's ability to meet age appropriate developmental expectations at school entry. The EDI questionnaire consists of 104 core items and is filled out by teachers for each of their Primary students.

The EDI was developed by Drs. Dan Offord and Magdalena Janus at the Offord Centre for Child Studies (OCCS) in 1998 in Ontario, Canada and has since become a population-level research and monitoring tool implemented at least once in all Canadian provinces and territories as well as in a number of sites outside of Canada.

The knowledge of children's outcomes at school entry derived from the population-level collections of the EDI data facilitates and encourages community, provincial, national, and international monitoring of the developmental health of our young learners.

Canada underlines the potential of the EDI to inspire education and advocacy for the importance of early childhood development, to steer policy and programming to promote the best outcomes possible for children and to help evaluate the effectiveness of such interventions. It is seen as a key resource in understanding, innovating, and advancing policy and programming for early childhood development.

3. What does the EDI Measure?

The Early Development Instrument (EDI) measures children’s developmental health at school entry by asking questions covering five different areas of their early development, which are further subdivided into 16 sub-domains that reflect various skills and abilities:

- Physical Health & Well-Being** - includes gross and fine motor skills - e.g., holding a pencil, running on the playground, motor coordination, and adequate energy levels for classroom activities.
Subdomains: Physical readiness for school day, Physical independence, Gross and fine motor skills
- Social Competence** - includes curiosity about the world, eagerness to try new experiences, knowledge of standards of acceptable behaviour in a public place, ability to control own behaviour, cooperation with others, following rules, and ability to play and work with other children.
Subdomains: Overall social competence, Responsibility and respect, Approaches to learning, Readiness to explore new things
- Emotional Maturity** - includes ability to reflect before acting, a balance between too fearful and too impulsive, and ability to deal with feelings at the age appropriate level, and empathic response to other people's feelings.
Subdomains: Prosocial and helping behaviour, Anxious and fearful behaviour, Aggressive behaviour, Hyperactivity and inattention
- Language and Cognitive Development** - includes reading awareness, age appropriate reading, writing and numeracy skills, board games, and ability to understand similarities and differences, and to recite back specific pieces of information from memory.
Subdomains: Basic literacy, Interest in literacy/numeracy and memory, Advanced literacy, Basic numeracy
- Communication Skills and General Knowledge** - includes skills to communicate needs and wants in socially appropriate ways, symbolic use of language, story-telling, and age appropriate knowledge about the life and world around.
Subdomains: Communication Skills and General Knowledge

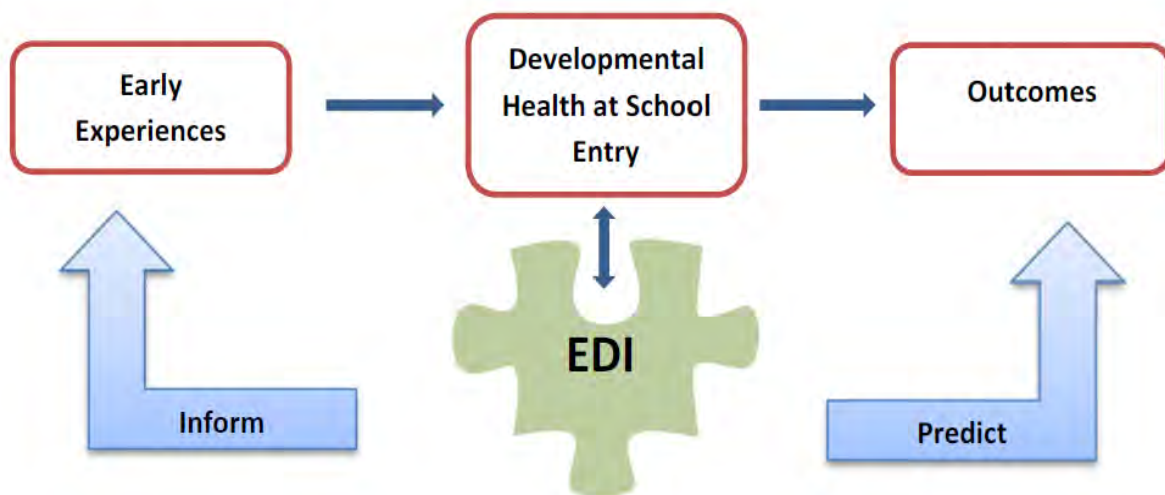
4. EDI Goals

Understanding the state of children’s development at the level of the population - for *all* children - is foundational to mobilizing stakeholders towards change. The EDI has been designed to enable the gathering of knowledge relevant for parents, educators, communities, and policy makers in order to facilitate an informed decision-making that could bring a positive change for children’s developmental trajectories.

The instrument provides information for groups of children in order to:

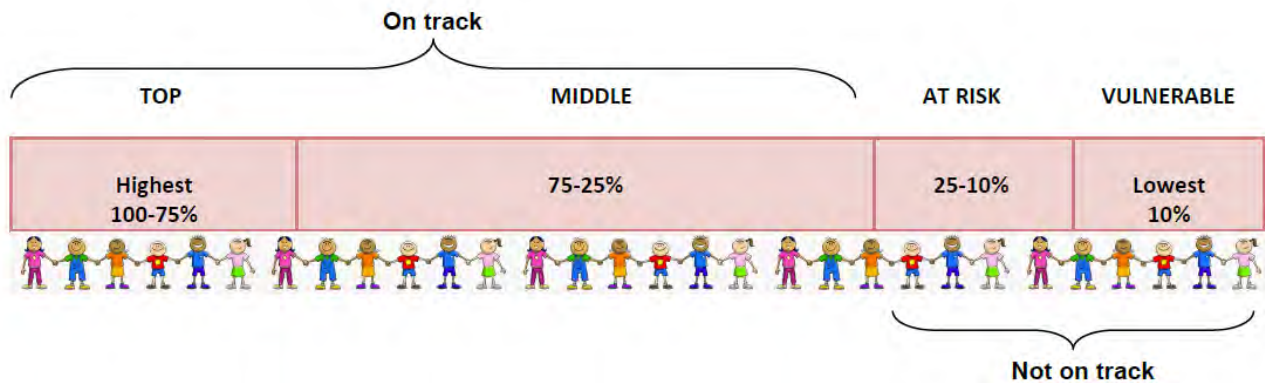
- ✓ report on areas of strength and weakness for populations of children
- ✓ monitor populations of children over time
- ✓ predict how children will do in elementary school
- ✓ provide a picture of what early learning looks like at the community level
- ✓ help identify gaps in programs and services

The information collected through the EDI helps us to understand the current state of children’s developmental health by connecting the conditions of early childhood experiences to learning outcomes and future successes.



5. Interpreting Results

The results from the EDI reflect the percentage of children who are on track as they enter Grade 1 and the percentage of those who are falling behind, or not on track. The EDI domain scores are divided into four segments as illustrated below. Children scoring in the bottom 10% are considered ‘vulnerable’ and children scoring in the 10% to 25% are considered ‘at risk.’ Children scoring above 25% are considered to be on track and ready to learn at school.



6. EDI in Nova Scotia

In Nova Scotia, the first province-wide implementation of the EDI was completed during the 2012/2013 school year. These data are considered to constitute the Nova Scotia “Baseline” and were used to determine the 10th percentile cut-points for subsequent reporting. The second provincial collection took place in the 2014/2015 school year. This was the first year that the Nova Scotia baseline was used as a comparison for reporting purposes.

7. Nova Scotia Results

In order for the questionnaire to be valid for analyses, the child must be in Primary, have been in class for more than one month, and the teacher must have completed the minimum number of items in the child's questionnaire. Children with special needs are reported on separately and not included in the report below

Number of Children in Analyses: From Received Questionnaires to Reports

	2012/2013 Count (%)	2014/2015 Count (%)
Total Completed EDIs	8592	8677
Not valid for analyses	610 (7.1%)	692 (8.0%)
Total Special needs children	415 (4.8%)	512 (5.9%)
Special needs valid for analyses	405 (4.7%)	496 (5.7%)
Non-SN valid for analyses	7982 (92.9%)	7985 (92.0%)

Demographic information provides valuable context to the EDI results, as it can help to explain variation (i.e. girls tend to have higher EDI scores than boys).

The demographic information is based on data for children without special needs whose questionnaires were considered valid.

Demographic information of Nova Scotian Children

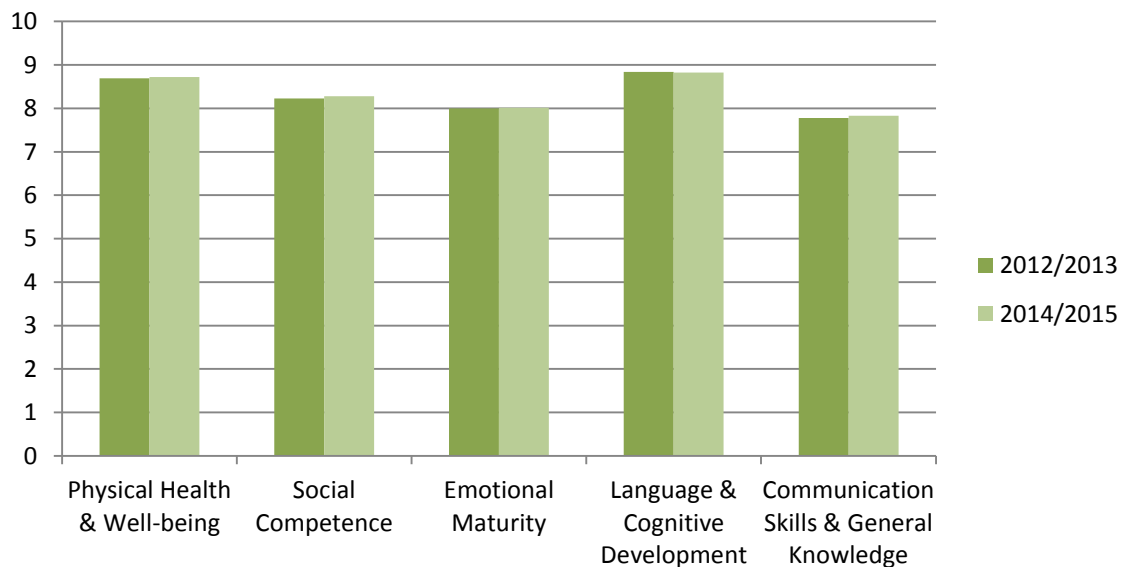
	2012/2013 Count (%)	2014/2015 Count (%)
Girls	3915 (49.0%)	3965 (49.7%)
Mean Age	5.69	5.68
English/French as a second language	450 (5.6%)	523 (6.6%)
English/French only as a first language	7595 (95.2%)	7586 (95.0%)
Aboriginal	212 (2.7%)	263 (3.3%)

Descriptive Statistics

The domain scores are made up of EDI core items. The Physical Health & Well-being domain has 13 items, the Social Competence domain as 26 items, the Emotional Maturity domain has 30 items, the Language & Cognitive Development domain has 26 items, and the Communication Skills and General Knowledge domain has 8 items.

Domain	2012/2013 Mean (SD)	2014/2015 Mean (SD)
Physical Health & Well-being	8.69 (1.45)	8.72 (1.43)
Social Competence	8.23 (1.89)	8.28 (1.85)
Emotional Maturity	8.00 (1.58)	8.01 (1.55)
Language & Cognitive Development	8.84 (1.63)	8.82 (1.66)
Communication Skills & General Knowledge	7.78 (2.46)	7.83 (2.45)

Average Domain Scores



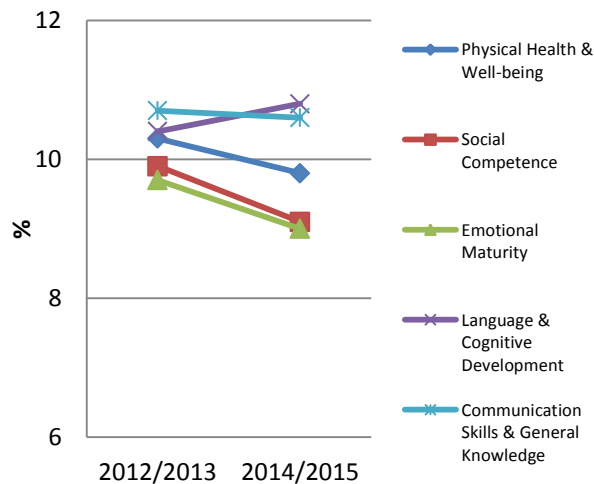
Vulnerable Children

“Vulnerable by domain” describes the children who score below the 10th percentile provincial cut-off for that domain.

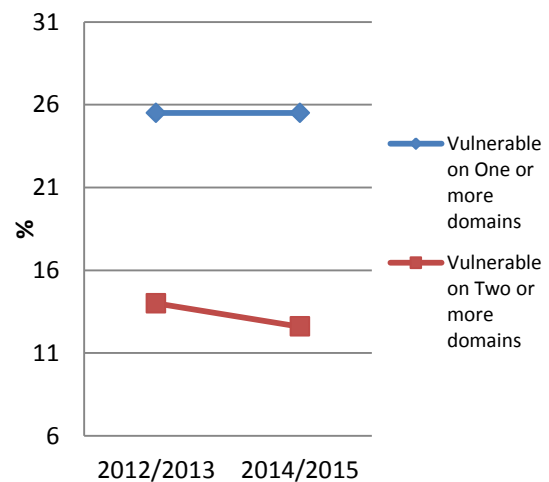
“Vulnerable on One or more domains” describes children who have fallen below the 10th percentile cut-point on at least one EDI domain. This can also be referred to as Overall Vulnerability.

Domain	2012/2013 %	2014/2015 %
Physical Health & Well-being	10.3	9.8
Social Competence	9.9	9.1
Emotional Maturity	9.7	9.0
Language & Cognitive Development	10.4	10.8
Communication Skills & General Knowledge	10.7	10.6
Vulnerable on One or more domains	25.5	25.5
Vulnerable on Two or more domains	14.0	12.6

Vulnerability by domain



Overall Vulnerability



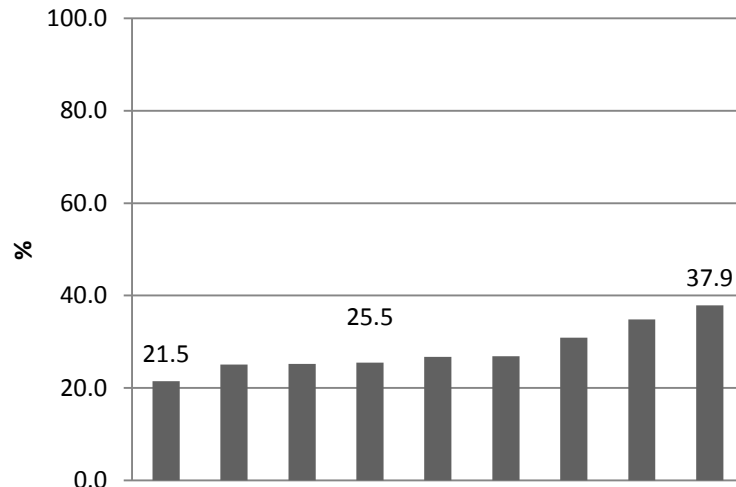
Range of Overall Vulnerability Rates by School Board

These graphs demonstrate the overall vulnerability (vulnerable on one or more domains) range across the province of Nova Scotia by school board. Each board in Nova Scotia that collected EDI data during each of the two years is represented in the graphs. The lowest and highest vulnerability rates are denoted by the value labels, and the provincial vulnerability rate is also noted.

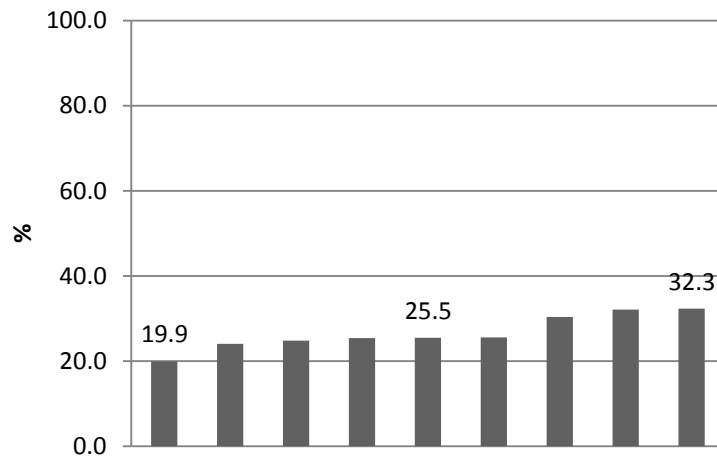
These graphs provide a more detailed picture of children’s developmental health across the province. It is important to examine the range of scores, as well as the provincial rate, to be able to determine if there are changes that are occurring at lower levels of population (i.e. school board), that are not detectable at the provincial level.

Please note that the number of children in each board varies, with some boards being very large and others quite small. This must be taken into consideration when interpreting these ranges.

2012/2013



2014/2015



Subdomain Profiles

Each of the five domains is divided into sub-domains, except for Communication Skills and General Knowledge. The sub-domains were originally identified using factor analysis. The table below shows the breakdown of sub-domains for each domain.

Scores for domains and sub-domains on the EDI vary from 0 to 10. Some sub-domains represent skills that a child in kindergarten, based on his or her developmental age, is expected to have mastered already (e.g., physical independence). Other sub-domains represent areas of development that are still emerging (e.g., prosocial behaviour).

Based on skills and abilities that each sub-domain represents, groups of scores were identified representing children who met all/almost all developmental expectations (reach the expectations for all or most of the subdomain items), some of the developmental expectations (reach the expectations for some of the subdomain items), and met few/none of the developmental expectations (reach expectations for none or few of the subdomain items). In contrast to the “*on track*”, “*at risk*”, and “*vulnerable*” groups identified for domains in the main report, which are based on the distribution of scores in the province or in Canada, the sub-domain categories are distribution-free.

In this table, the percentage of children who met all/almost all, some, and few/none of the developmental expectations are given for each sub-domain. An investigation of percentages of children who fall into the “*few/none*” category will identify areas of the greatest weakness in the population.



Subdomain		2012/2013	2014/2015
Physical Health & Well-being			
Physical readiness for school day	<i>Meeting few or none of the developmental expectations</i>	5.7%	4.9%
	<i>Some of the developmental expectations</i>	N/A	N/A
	<i>Meeting all or almost all of the developmental expectations</i>	94.0%	95.0%
Physical independence	<i>Meeting few or none of the developmental expectations</i>	13.2%	12.4%
	<i>Some of the developmental expectations</i>	N/A	N/A
	<i>Meeting all or almost all of the developmental expectations</i>	86.7%	87.5%
Gross and fine motor skills	<i>Meeting few or none of the developmental expectations</i>	27.8%	25.6%
	<i>Some of the developmental expectations</i>	17.1%	17.9%
	<i>Meeting all or almost all of the developmental expectations</i>	55.1%	56.4%
Social Competence			
Overall Social Competence	<i>Meeting few or none of the developmental expectations</i>	10.0%	9.0%
	<i>Some of the developmental expectations</i>	42.4%	42.4%
	<i>Meeting all or almost all of the developmental expectations</i>	47.5%	48.6%
Responsibility and respect	<i>Meeting few or none of the developmental expectations</i>	6.3%	6.2%
	<i>Some of the developmental expectations</i>	17.4%	16.9%
	<i>Meeting all or almost all of the developmental expectations</i>	76.3%	76.9%
Approaches to learning	<i>Meeting few or none of the developmental expectations</i>	11.0%	10.1%
	<i>Some of the developmental expectations</i>	31.4%	30.4%
	<i>Meeting all or almost all of the developmental expectations</i>	57.6%	59.5%
Readiness to explore new things	<i>Meeting few or none of the developmental expectations</i>	1.9%	1.9%
	<i>Some of the developmental expectations</i>	13.9%	14.0%
	<i>Meeting all or almost all of the developmental expectations</i>	83.5%	83.8%
Emotional Maturity			
Prosocial and helping behaviour	<i>Meeting few or none of the developmental expectations</i>	29.0%	30.0%
	<i>Some of the developmental expectations</i>	30.7%	29.4%
	<i>Meeting all or almost all of the developmental expectations</i>	35.1%	37.2%
Anxious and fearful behaviour	<i>Meeting few or none of the developmental expectations</i>	2.9%	2.7%
	<i>Some of the developmental expectations</i>	10.9%	11.4%
	<i>Meeting all or almost all of the developmental expectations</i>	86.0%	85.8%
Aggressive behaviour	<i>Meeting few or none of the developmental expectations</i>	8.8%	9.2%
	<i>Some of the developmental expectations</i>	7.5%	7.2%
	<i>Meeting all or almost all of the developmental expectations</i>	83.7%	83.5%
Hyperactivity and inattention	<i>Meeting few or none of the developmental expectations</i>	15.4%	15.8%
	<i>Some of the developmental expectations</i>	14.8%	14.3%
	<i>Meeting all or almost all of the developmental expectations</i>	69.8%	69.8%
Language and Cognitive Development			
Basic literacy	<i>Meeting few or none of the developmental expectations</i>	7.2%	7.7%
	<i>Some of the developmental expectations</i>	16.4%	17.8%
	<i>Meeting all or almost all of the developmental expectations</i>	76.2%	73.6%
Interest in literacy, numeracy & memory	<i>Meeting few or none of the developmental expectations</i>	9.0%	8.8%
	<i>Some of the developmental expectations</i>	11.8%	11.9%
	<i>Meeting all or almost all of the developmental expectations</i>	78.7%	79.0%
Advanced literacy	<i>Meeting few or none of the developmental expectations</i>	9.1%	8.7%
	<i>Some of the developmental expectations</i>	5.8%	6.3%
	<i>Meeting all or almost all of the developmental expectations</i>	83.6%	82.9%
Basic numeracy	<i>Meeting few or none of the developmental expectations</i>	13.3%	13.7%
	<i>Some of the developmental expectations</i>	9.4%	9.9%
	<i>Meeting all or almost all of the developmental expectations</i>	76.4%	75.4%
Communication Skills and General Knowledge			
Communication Skills & General Knowledge	<i>Meeting few or none of the developmental expectations</i>	29.9%	28.8%
	<i>Some of the developmental expectations</i>	22.1%	22.1%
	<i>Meeting all or almost all of the developmental expectations</i>	47.9%	49.1%

Multiple Challenge Index

There are 16 sub-domains within the five domains of the EDI. Each of the sub-domains represents a relatively homogenous aspect of a child’s development. If a child scores below expectations (below the cut-off) on 9 or more of the 16 sub-domains he/she is considered to have multiple challenges.

Analysis of the distribution of the number of challenges in one or more sub-domain indicates that having scores below the cut-off in 9 or more pointed to serious problems in multiple domains. Three of the 5 domains have 4 sub-domains, one has 3, and the last one has 1. Therefore experiencing challenge in 9 sub-domains means that they are from at least 3 of the major five developmental domains.

The cut-offs on the sub-domains are based on the teacher’s endorsement of the items on the questionnaire (the actual responses a teacher completes on the questionnaire).

