



The Full Day Kindergarten Early Learning Program Final Report

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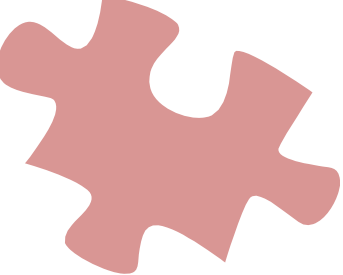
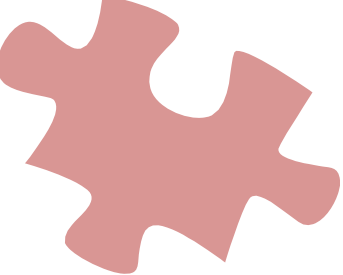


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Introduction

In June 2009, a report authored by Charles Pascal, a Special Advisor to the Premier of Ontario, “*With their best future in mind*” (Pascal, 2009), recommended full-day kindergarten and wrap-around care for 4- and 5-year-olds. This program has been legislated and will be implemented over the course of five years to eventually include every primary school in Ontario. The Full Day Kindergarten (FDK) Early Learning Program (ELP) is being phased-in, the first phase of which started in the 2010/2011 school year.

The described project was a 2-year investigation of children’s developmental outcomes measured with the Early Development Instrument (EDI) in relation to individual, school, and neighbourhood factors within the context of the ELP. The goal of this study was to document possible early impact, if any, of the FDK on children’s developmental status.

The ELP is a population-based, universal program. As such, its advantage is in reaching all children, rather than targeting children deemed at most need due to factors established through previous research and practice. At the same time, however, its disadvantage is in lack of specificity. Research indicates that universal programs rarely show distinct advantageous outcomes over a short period of time. While this report addresses results of a two-year evaluation project, it is imperative that the children participating in this study are followed over longer periods of time to facilitate more in-depth long-term investigations.

Report structure

This final study report is presented in three sections. Section 1 includes Year 1 descriptive analyses; Section 2 includes Year 2 descriptive analyses; and Section 3 includes analyses for both years of study in cross-sectional design and school-based longitudinal design.

Methods

Project design

The ideal design to measure impacts of a program is to randomize units (children, or in this case schools) into treatment groups. Due to the constraints in the way the FDK was implemented, this methodology was not possible. As closely as possible, a matched and longitudinal control design was applied.

There were several major school/community characteristics that were taken into account. These are, not exhaustively: official language of the school board (English/French), type of school board (public/separate), geographical location, and most importantly, year of implementation of the FDK (phase). Schools were selected from the pool of those where the

FDK was in Phase 1 (implemented in 2010/11), those where the FDK was in Phase 2 (implemented in 2011/12), and those where the FDK was implemented later than 2012.

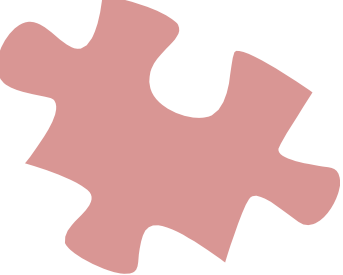
In each of the selected schools, teachers of Junior and Senior Kindergarten children were asked to complete the EDI. The Kindergarten Parent Survey (KPS) was subsequently sent to the children's parents for whom the EDI was completed.

Selection of schools

Schools have been selected in the following way:

1. All schools in the Phase 1 of FDK were identified and sorted by their Ministry of Education (EDU) region.
2. The address, size, and percentage of families in the school neighbourhood with income below national average were noted.
3. Schools from the later Phases (i.e., not 1 or 2), and from the same school boards as Phase 1 schools were identified.
4. From these possible "control" schools, potential matches to Phase 1 schools were identified based on four criteria:
 - a. same board type and language of instruction (Catholic/Public; English/French),
 - b. within no more than 20 km from each other,
 - c. same above-below % low income category,
 - d. similar school size (within approximately 50 for small schools and 100 for large school).
5. The actual selection of the boards was made collaboratively between EDU and OCCS, based on recent EDI data collection status
 - a. with two exceptions, sites scheduled to complete the EDI in 2010/11 roll-out were excluded
 - b. the "concurrent" sites were included only if there was no alternative and comparable sites within the EDU region to choose (Toronto and Ottawa)
6. The following school boards/regions were selected (a total of 126 schools):





EDU Region	CYS Site	School Boards	Total N of schools
Barrie	Simcoe	- Simcoe County DSB - Simcoe Muskoka Catholic DSB	24
London	Waterloo	- Waterloo Catholic DSB - Waterloo Region DSB	23
London	Sarnia-Lambton	- Lambton Kent DSB - St. Clair Catholic DSB	4
London	Chatham-Kent	- Lambton Kent DSB - St. Clair Catholic DSB	4
Ottawa	Ottawa	- CSD catholique du Centre-Est de l'Ontario - CSD des écoles publiques de l'Est de l'Ontario - Ottawa Catholic DSB - Ottawa-Carleton DSB	39
Ottawa	Renfrew	- CSD des écoles publiques de l'Est de l'Ontario	1
Ottawa	Stormont Dundas Glengarry Prescott Russell	- CSD des écoles publiques de l'Est de l'Ontario	2
Sudbury/North Bay	Timiskaming	- DSB Ontario North East - CSD du Nord-Est de l'Ontario - CSD catholique des Grandes Rivières	5
Sudbury/North Bay	Timmins-James Bay	- CSD catholique des Grandes Rivières - CSD du Nord-Est de l'Ontario - DSB Ontario North East	6
Thunder Bay	Thunder Bay-Atikokan	- Rainy River DSB - Northwest Catholic DSB	2
Thunder Bay	Kenora-Rainy River	- Rainy River DSB	1
Toronto	Chatham-Kent	- CSD des écoles catholiques du Sud-Ouest	2
Toronto	London-Fanshawe	- CSD des écoles catholiques du Sud-Ouest	1
Toronto	SDGPR	- CSD des écoles publiques de	1



		l'Est de l'Ontario	
Toronto	Simcoe	- CSD catholique Centre-Sud	2
Toronto	Toronto	- CS Viamonde (CSD du Centre Sud-Ouest)	2
Toronto	Waterloo	- CSD catholique Centre-Sud	2
Toronto	Wellington	- CSD catholique Centre-Sud	1
Toronto	York	- CS Viamonde (CSD du Centre Sud-Ouest) - CSD catholique Centre-Sud	3

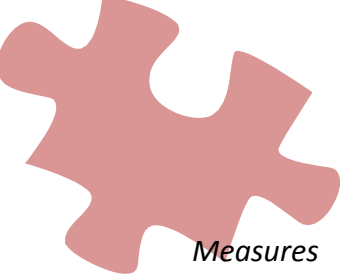
The list of participating schools is found in Appendix A.

The study groups

This project compares participants in three separate groups. The first group consists of children who attended full day Junior (JK) and Senior Kindergarten (SK) in year 1 and full day Junior and Senior Kindergarten in year 2 (2 years FDK group). The second group is comprised of children who did not attend full day Junior or Senior Kindergarten in year one, but attended full day Junior and Senior Kindergarten in year 2 (1 year FDK group). The third group of children did not attend full day Kindergarten, Junior or Senior, at any time (No FDK group).

Abbreviation	Definition
EDI	Early Development Instrument
FDK	Full Day Kindergarten
ELP	Early Learning Project
OCCS	Offord Centre for Child Studies
JK	Junior Kindergarten
SK	Senior Kindergarten
2 years FDK group	Children in group with Full Day Kindergarten in Year 1 and Year 2
1 year FDK group	Children in group with Full Day Kindergarten in Year 2 only
No FDK group	Children in group with no Full Day Kindergarten
E/FSL	English/French as a Second Language
KPS	Kindergarten Parent Survey
ANOVA	Analysis of Variance
MLM	Multi-Level Modelling
SRI	Social Risk Index
s.e.	Standard error





Measures

Early Development Instrument (EDI)

The Early Development Instrument, a teacher-completed, population-level questionnaire, was developed at the Offord Centre for Child Studies at McMaster University, to measure children’s ability to meet age appropriate developmental expectation at school entry (Janus & Offord, 2007). The EDI focuses on the outcomes for children as a health-relevant, measurable concept that has long-term consequences for both individual outcomes and population health in five developmental domains relevant to children’s success at school: physical health and well-being, social competence, emotional maturity, language and cognitive development, and communication skills and general knowledge. The data derived from the collection of the EDI facilitates and encourages community, provincial, national and international monitoring of the developmental health of our young learners.

By the year 2010, two 3-year waves of provincial EDI implementations in Ontario have been completed, and these data have been frequently used by various Ontario government branches. The majority of Ontario kindergarten teachers have had experience in completing the instrument.

Kindergarten Parent Survey (KPS)

While the EDI alone can provide information on children’s abilities and skills as they enter school, a well-rounded picture of the health of a community’s children is only possible when it is used in conjunction with other measures. In Ontario, the need for more information on family characteristics and experiences of children before entering kindergarten led to the development of the Kindergarten Parent Survey (KPS), a parent-completed survey which can be used as a companion document to the EDI (Janus et al, 2007). In Ontario, the survey is completed by the parents of children for whom the teacher is completing the EDI. The KPS is an 8-page questionnaire that provides information on the environment and familial influences on children’s developmental health at school entry such as: child health and development, child care, children’s experiences before kindergarten, regular activities, services and programs accessed, kindergarten experiences, and family and neighbourhood characteristics.

Social Risk Index (SRI)

The Social Risk Index (SRI) has commonly been used to examine the relationship between EDI and socioeconomic information. The index is comprised of nine indicators that are calculated using Census data, including unemployment rate, percent of income from government transfer payments, percent of low income, percent without a high school diploma, percent of families with a lone parent, percent of homes that are rented, percent that speak neither English nor French, percent that have moved in the previous year, and percent that have immigrated in the previous five years. The SRI is an average of each of these nine variables, with a higher number indicating higher risk and therefore, lower socio-economic status.

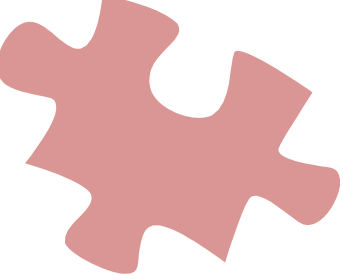
Study procedure

Ethical approval for the study was secured through the Review Ethics Board of McMaster University. The recruitment of participants was carried out by the Ministry of Education. School boards and school principals had to agree for their schools to be included, and once this was achieved, letters of invitation to participate in the study were sent by schools to the families of all eligible children. Parents who wanted their children to be included sent the letter of consent back to the school, and this information was communicated to a school board representative. Demographic data for children whose parents completed letters of consent were sent to the OCCS in order to be uploaded to the electronic EDI page. This was done only when a consent return deadline passed, and only then the teacher was able to complete the EDI for these children. Due to unexpected delays, data collection in Year 1 did not start until mid-April 2011 and was not completed until late June. All parents who consented for the EDI to be completed also agreed to complete the Kindergarten Parent Survey (KPS). However, less than half of the parents in the study returned the KPS, rendering the data based on KPS not representative. The EDI data were scored and analysed each year (Section 1 and Section 2 of the report). Once all data were collected, additional analyses were carried out with results based on both years (Section 3 of the report).

Overall project sample

There were a total of 16,736 children eligible to participate in the ELP FDK project, 8,640 in Year 1 and 8,096 in Year 2. Parental consent was required for participation in the project and was received for 8,577 children from 126 schools across Ontario. The total number of children consented per year were 4,007 Year 1 children (2,423 Junior Kindergarteners, 1,584 Senior Kindergarteners) and 4,570 Year 2 children (2,237 Junior Kindergarteners, 2,333 Senior Kindergarteners). In order to be valid for analyses, children had to be in class for more than one month, a minimum number of items had to be completed on the EDI, and children needed to be assigned to an FDK Group. Also, special needs children were not included in the overall analyses. There were 3,740 Year 1 children (2,255 JK and 1,479 SK) and 4,321 Year 2 children (2,124 JK and 2,197 SK) who met the inclusion criteria. For exact details on Year 1 and Year 2 EDI and KPS-based samples please see Part A and B of Section I and Section II.





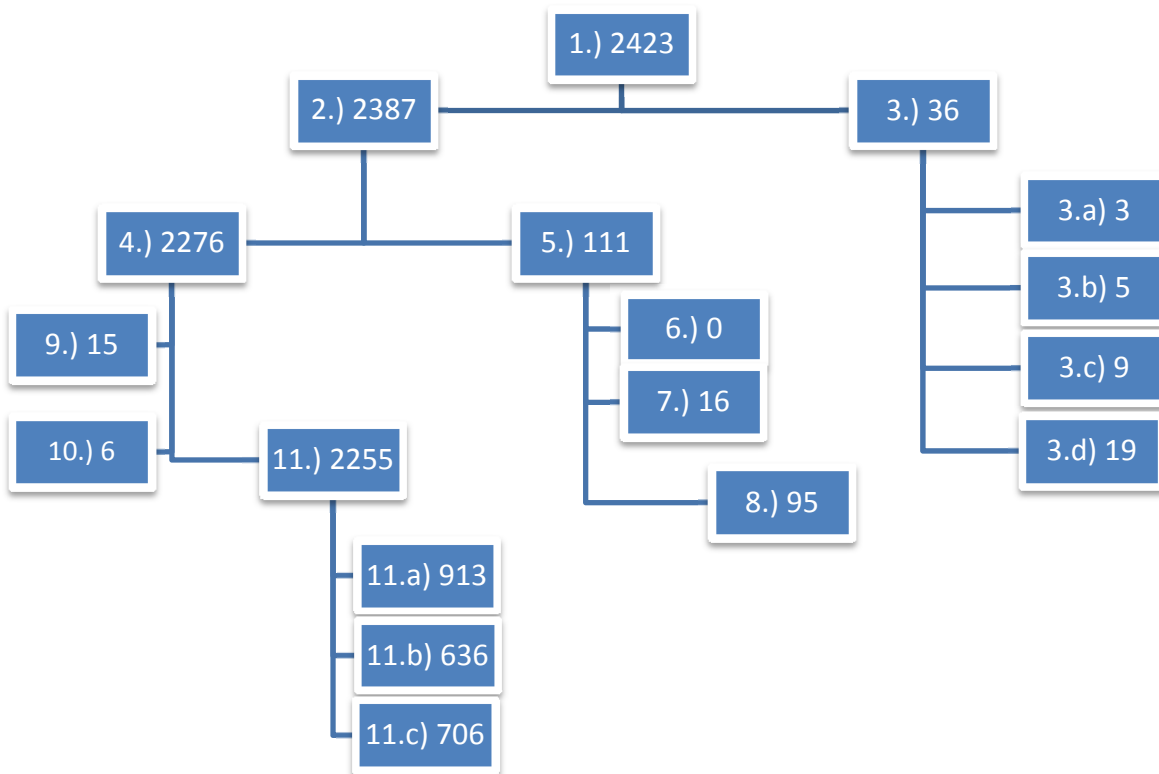
Section I
Descriptive Analyses of EDI and KPS data
Year 1 (2010/2011)



Section I: Year 1

Part A. Junior Kindergarten

Number of Junior Kindergarten Children in ELP EDI and KPS Analyses



1. Total JK (with consent) questionnaires completed.
2. Questionnaires for children in class more than 1 month.
3. Questionnaires for children in class other than in class more than 1 month
 - a. in class <1 month
 - b. moved out of class
 - c. moved out of school
 - d. other
4. Questionnaires without Special Needs.
5. Questionnaires labelled as Special Needs or missing Special Needs assignment.
6. Special Needs children with incomplete questionnaires (missing more than one domain).
7. Questionnaires missing Special Needs assignment.
8. Questionnaires valid for analyses in reports for children with Special Needs.
9. Non Special Needs children with incomplete questionnaires (missing more than one domain)
10. Children missing an FDK status group.
11. Questionnaires valid for analyses in reports for children without Special Needs.
 - a. 2-years FDK group
 - b. 1-year FDK group
 - c. No FDK group



Descriptive Statistics for Year 1 Junior Kindergarten by FDK Group

Overall, out of 2,423 EDIs completed for children in Junior Kindergarten, 2,255 contained valid data for summary analyses (93.1%). 95 out of 2,423 (approximately 5%) of children were reported as having Special Needs. These rates were similar across the three study groups.

The tables below describe the composition of each of the three different FDK groups. These tables demonstrate that the groups are relatively similar in their demographic composition.

Gender	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
Girl	468 (51.3 %)	321 (50.5%)	354 (50.1%)
Boy	445 (48.7%)	315 (49.5%)	352 (49.9%)

English/French as a Second Language	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
E/FSL	252 (27.6%)	130 (20.4%)	193 (27.3%)
No E/FSL	659 (72.2%)	506 (79.6%)	513 (72.7%)
Missing	2 (0.2%)	0.0 (0.0%)	0.0 (0.0%)

First Language	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
English	581 (63.6%)	434 (68.2%)	420 (59.5%)
French	71 (7.8%)	53 (8.3%)	66 (9.3%)
Other only	110 (12.0%)	53 (8.3%)	62 (8.8%)
English & French	78 (8.5%)	58 (9.1%)	104 (14.7%)
English & Other	17 (1.9%)	6 (0.9%)	21 (3.0%)
French & Other	5 (0.5%)	5 (0.8%)	3 (0.4%)
Two other languages	7 (0.8%)	3 (0.5%)	4 (0.6%)
Missing	44 (4.8%)	24 (3.8%)	26 (3.7%)

French Immersion	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
French Immersion	14.0 (1.5%)	62.0 (9.7%)	109.0 (15.4%)
Non-French Immersion	897.0 (98.2%)	572.0 (89.9%)	597.0 (84.6%)
Missing	2.0 (0.2%)	2.0 (0.3%)	0.0 (0.0%)

Aboriginal	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
Aboriginal	13 (1.4%)	3 (0.5%)	4 (0.6%)
Not Aboriginal	767 (84.0%)	558 (87.7%)	616 (87.3%)
Missing	133 (14.6%)	75 (11.8%)	86 (12.2%)



ELP Year 1 Junior Kindergarten Results 2010/2011

Overall Comparisons by FDK Group

The EDI was completed for 2,255 non-Special Needs Junior Kindergarten students in Year 1 of the ELP FDK project. The tables and graph below illustrate descriptive statistics by FDK group.

	2 years FDK group	1 year FDK group	No FDK group	<i>p</i> -value
Girls	468	321	354	.898
Boys	445	315	352	

	2 years FDK group	1 year FDK group	No FDK group	<i>p</i> -value
N	913	636	706	.277
Mean Age	4.98	5.01	4.98	
SD	0.38	0.42	0.39	

The *p*-values in the above tables demonstrate that the three groups do not differ statistically in terms of the composition of gender or age.

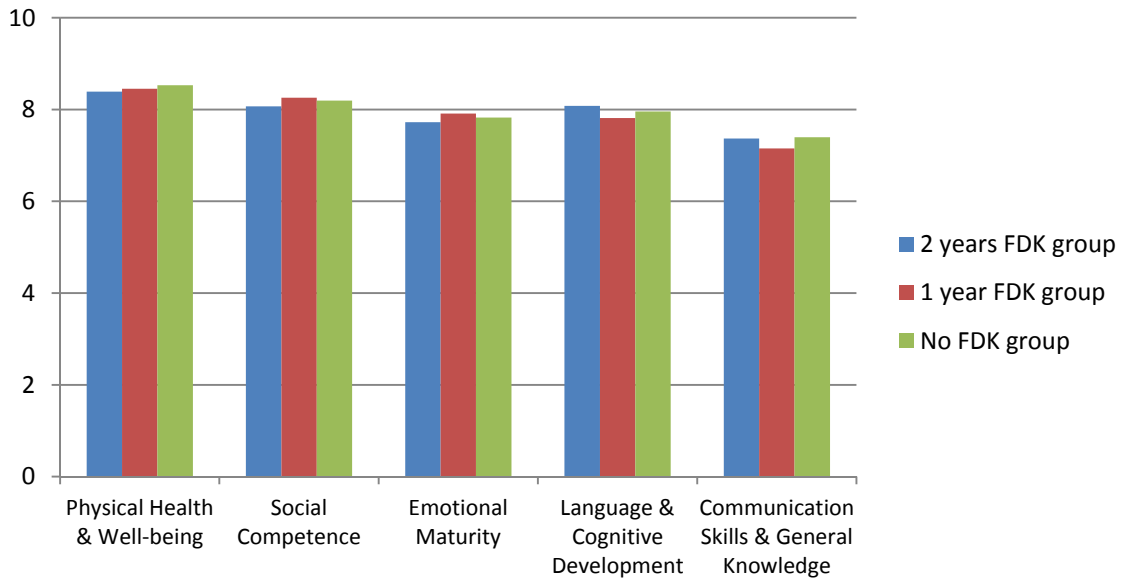
The table below outlines the mean scores and standard deviations for each domain by FDK group. The *p*-values in this table indicate that there is a significant difference between the three groups in the domain of Language and Cognitive Development. Post-hoc analyses did not demonstrate any differences when comparing the groups individually to each other.

Note: As of the late summer 2012, neighbourhood-level index of socioeconomic status (Social Risk Index, or SRI), became available. The domain score comparisons by FDK group were repeated with SRI as a covariate, and the results are in Appendix B.



Domains	Mean (SD)			p-value
	2 years FDK group	1 year FDK group	No FDK group	
Physical Health & Well-being	8.39 (1.52)	8.45 (1.48)	8.53 (1.46)	.171
Social Competence	8.07 (1.93)	8.26 (1.82)	8.19 (1.94)	.140
Emotional Maturity	7.72 (1.59)	7.91 (1.50)	7.82 (1.56)	.063
Language & Cognitive Development	8.08 (1.88)	7.81 (2.02)	7.96 (2.04)	.034
Communication Skills & General Knowledge	7.37 (2.62)	7.15 (2.71)	7.40 (2.67)	.177

Comparison of Means



Percentage of Vulnerable Children (JK Year 1)

“Vulnerable” describes children whose domain scores are in the lowest 10th percentile of a distribution. The table and graph below illustrate the percentage of children in each FDK group who score is in the lowest 10th percentile based on the Ontario Baseline distribution. Please note that the Ontario Baseline 10th percentile cut-offs are based on data collected for Senior Kindergarten children, therefore it is to be expected that this Junior Kindergarten cohort of children would have higher rates of vulnerability.

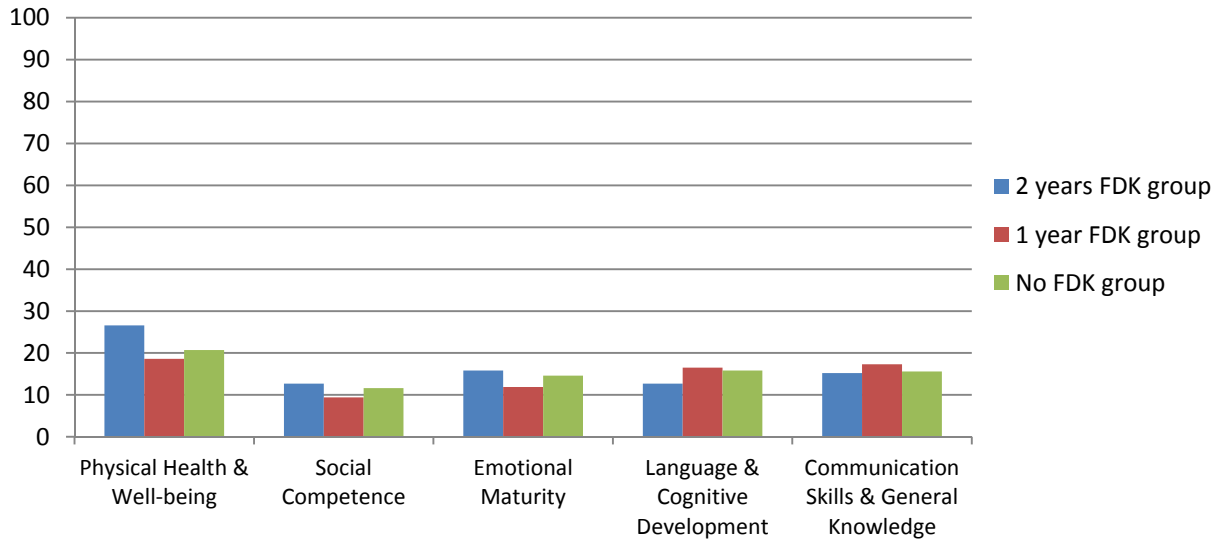
The *p*-values in the below table illustrate that there is a significant difference in vulnerability between the three groups in the domain of Physical Health and Well-being. *Post hoc* analyses demonstrated that the 2 years FDK group had a significantly higher percentage of vulnerability in the Physical Health and Well-being domain than the 1 year FDK group and the No FDK group.

Note: As of the late summer 2012, neighbourhood-level index of socioeconomic status (Social Risk Index, or SRI), became available. The vulnerability comparisons by FDK group were repeated with SRI as a covariate, and the results are in Appendix C.

Domains	% Vulnerable (ON Baseline cut-offs)			
	2 years FDK group	1 year FDK group	No FDK group	<i>p</i> -value
Physical Health & Well-being	26.6%	18.6%	20.7%	< 0.001
Social Competence	12.7%	9.4%	11.6%	0.136
Emotional Maturity	15.8%	11.9%	14.6%	0.099
Language & Cognitive Development	12.7%	16.5%	15.8%	0.076
Communication Skills & General Knowledge	15.2%	17.3%	15.6%	0.525
Vulnerable on one or more EDI domains	40.6%	36.0%	36.5%	0.111



Vulnerability (%) by domain



Group Comparisons (JK) ELP Year 1 2010/2011

The tables below compare factors that influence EDI results. Comparisons are by demographic information (i.e. gender, age, etc.) and FDK group. Please note that higher mean scores indicate better levels of developmental health at school entry.

The effect size is an accepted indicator of the strength of the relationship between two variables and assesses whether the differences are meaningful or not. Since it is independent of the measurement or sample size, the effect size of a difference between two groups is the best indicator of how meaningful this difference is. In this report, the effect size is computed as follows:

$$\frac{\text{mean}(\text{comparison group}) - \text{mean}(\text{reference group})}{\text{SD}(\text{reference group})}$$

It is customary to interpret the effect sizes of 0 to 0.3 as small, 0.3 to 0.8 as moderate, and greater than 0.8 as large. Negative effect sizes mean the comparison group has a lower mean score than the reference group.

*Note that the reference group used in the calculations of effect size is indicated with an asterisk.

1. Gender

	2 years FDK group					1 year FDK group					No FDK group				
	Girls*		Boys		Effect Size	Girls*		Boys		Effect Size	Girls*		Boys		Effect Size
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Physical health & Well-being	8.55	1.45	8.22	1.58	0.23	8.60	1.44	8.30	1.50	0.20	8.62	1.38	8.44	1.53	0.13
Social Competence	8.40	1.74	7.72	2.05	0.40	8.65	1.65	7.86	1.91	0.48	8.57	1.69	7.82	2.10	0.44
Emotional Maturity	8.07	1.47	7.37	1.63	0.48	8.31	1.24	7.50	1.63	0.66	8.25	1.32	7.39	1.66	0.65
Language & Cognitive development	8.29	1.76	7.86	1.97	0.24	8.03	1.91	7.59	2.11	0.23	8.14	1.91	7.77	2.15	0.19
Communication & General knowledge	7.77	2.47	6.94	2.71	0.34	7.64	2.54	6.65	2.78	0.39	7.66	2.58	7.13	2.73	0.21



2. Age of Child (mean age is 4.96 years)

	2 years FDK group					1 year FDK group					No FDK group				
	Above mean age*		Below mean age		Effect Size	Above mean age*		Below mean age		Effect Size	Above mean age*		Below mean age		Effect Size
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Physical health & Well-being	8.57	1.50	8.21	1.52	0.24	8.68	1.27	8.23	1.63	0.36	8.71	1.40	8.35	1.49	0.25
Social Competence	8.26	1.90	7.88	1.93	0.20	8.49	1.75	8.03	1.86	0.26	8.46	1.77	7.94	2.06	0.30
Emotional Maturity	7.84	1.59	7.61	1.57	0.14	8.13	1.42	7.69	1.55	0.31	8.03	1.51	7.62	1.59	0.27
Language & Cognitive development	8.35	1.75	7.81	1.96	0.31	8.29	1.79	7.34	2.12	0.53	8.38	1.77	7.55	2.19	0.47
Communication & General knowledge	7.74	2.53	7.00	2.66	0.29	7.38	2.69	6.92	2.71	0.17	7.78	2.42	7.03	2.84	0.31

3. Children with E/FSL status

	2 years FDK group					1 year FDK group					No FDK group				
	Not E/FSL*		E/FSL		Effect Size	Not E/FSL*		E/FSL		Effect Size	Not E/FSL*		E/FSL		Effect Size
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Physical health & Well-being	8.34	1.51	8.52	1.55	-0.12	8.44	1.49	8.49	1.41	-0.03	8.51	1.45	8.58	1.47	-0.05
Social Competence	8.03	1.90	8.17	1.99	-0.07	8.34	1.78	7.95	1.95	0.22	8.27	1.92	7.98	1.99	0.15
Emotional Maturity	7.71	1.60	7.75	1.55	-0.03	7.96	1.52	7.74	1.40	0.15	7.93	1.52	7.54	1.65	0.26
Language & Cognitive development	8.27	1.82	7.57	1.93	0.38	7.96	1.92	7.24	2.31	0.37	8.14	1.92	7.47	2.26	0.35
Communication & General knowledge	7.78	2.39	6.29	2.89	0.62	7.50	2.54	5.78	2.92	0.68	7.83	2.40	6.25	3.00	0.66

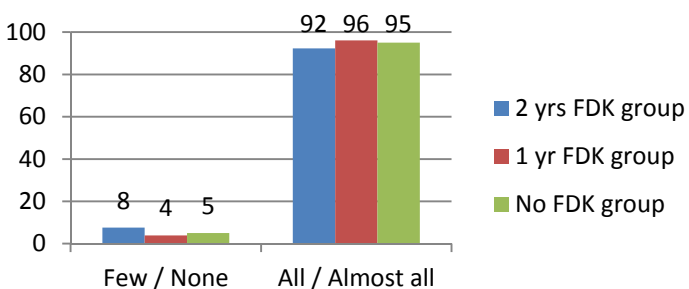


Subdomain Profiles (Year 1 JK)

Each of the five domains is divided into sub-domains, except for Communication Skills and General Knowledge. Based on skills and abilities that each sub-domain represents, children are classified as being at/above developmental expectations (reach the expectations for all or most of the sub-domain items), in the middle (reach the expectations for some of the sub-domain items), and below developmental expectations (reach expectations for none or few of the sub-domain items). Note that the Physical Readiness for School Day and the Physical Independence subdomains do not feature a middle category because of the definitive nature of the questions they are comprised of.

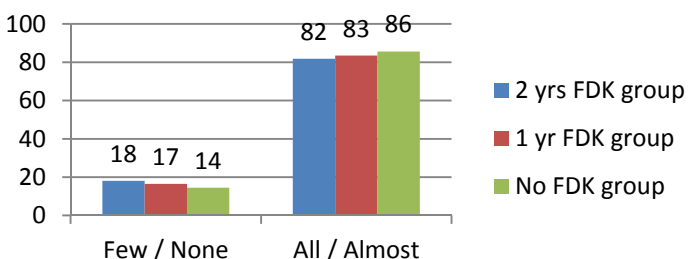
The graphs below provide a comparison between the three FDK groups for each of the 16 subdomains. The graphs below are percentages of children in each subdomain category.

Physical Health & Well-being



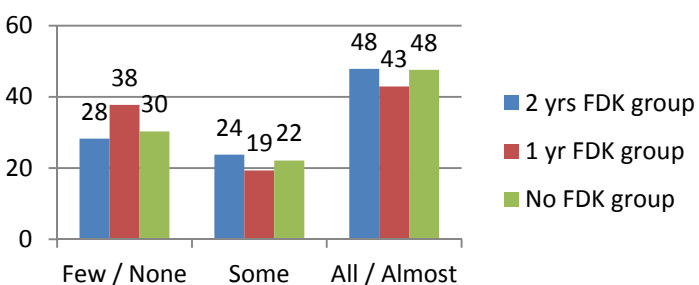
Physical readiness for school day

Children who reach **all or almost all** of the developmental expectations never or almost never experienced being dressed inappropriately for school activities, or coming to school tired, late or hungry



Physical independence

Children who reach **all or almost all** of the developmental expectations are independent in looking after their needs, have an established hand preference, are well coordinated, and do not suck a thumb/finger

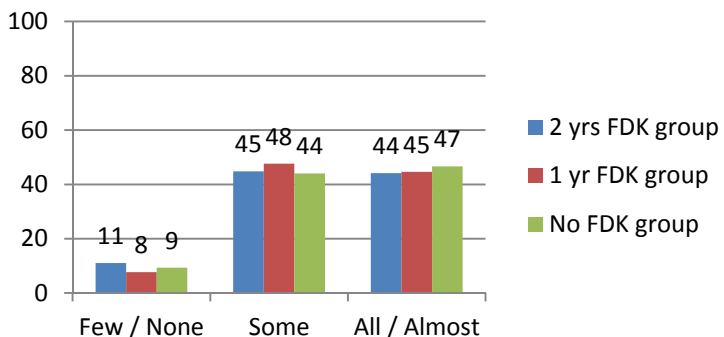


Gross and fine motor skills

Children who reach **all or almost all** of the developmental expectations have an excellent ability to physically tackle the school day and have excellent or good gross and fine motor skills.

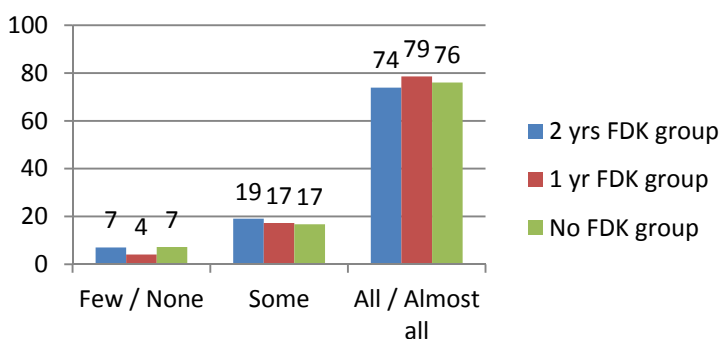


Social Competence



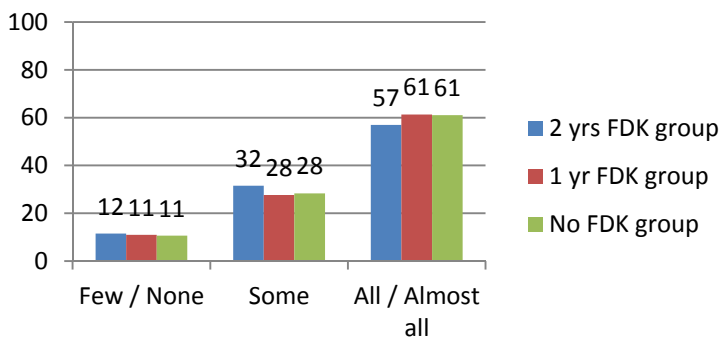
Overall social competence

Children who reach **all or almost all** of the developmental expectations have excellent or good overall social development, very good ability to get along with other children and play with various children; usually cooperative and self-confident.



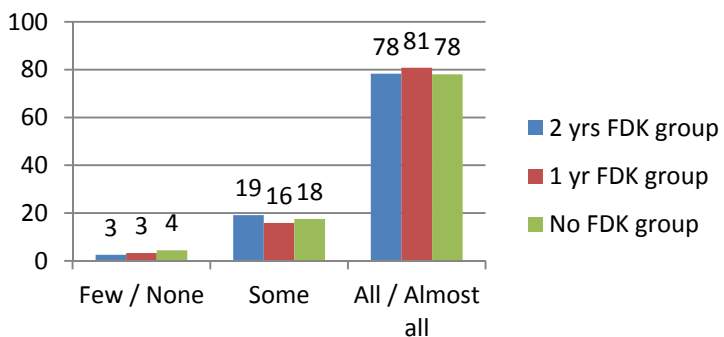
Responsibility and respect

Children who reach **all or almost all** of the developmental expectations always or most of the time show respect for others and for property, follow rules and take care of materials, accept responsibility for actions, and show self-control.



Approaches to learning

Children who reach **all or almost all** of the developmental expectations always or most of the time work neatly, work independently, solve problems, follow instructions and class routines, and easily adjust to changes.

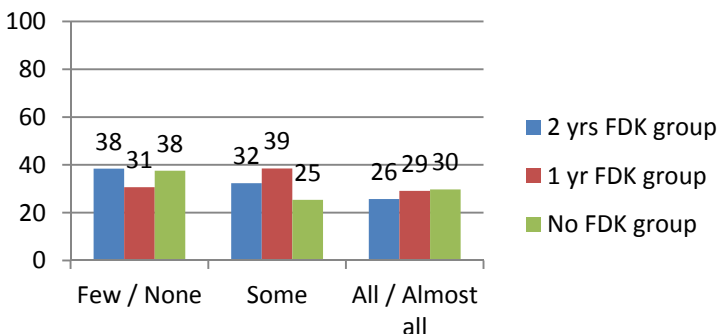


Readiness to explore new things

Children who reach **all or almost all** of the developmental expectations are curious about the surrounding world and are eager to explore new books, toys, and games.

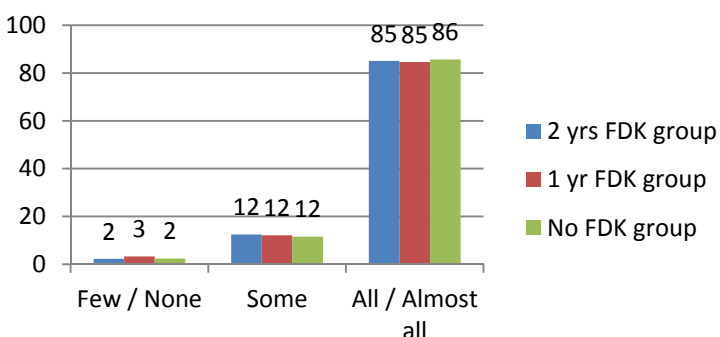


Emotional Maturity



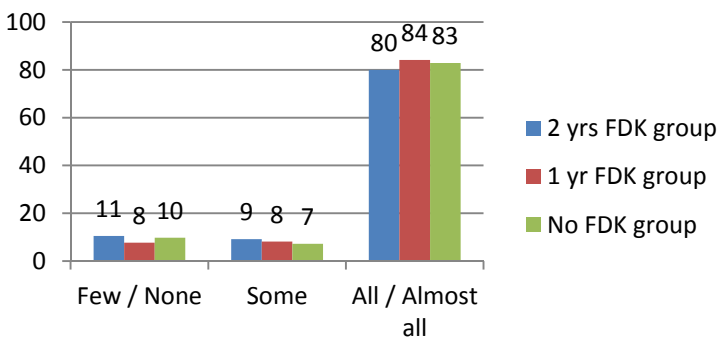
Prosocial and helping behaviour

Children who reach **all or almost all** of the developmental expectations show most of the helping behaviours: helping someone hurt, sick or upset, offering to help spontaneously, invite bystanders to join in



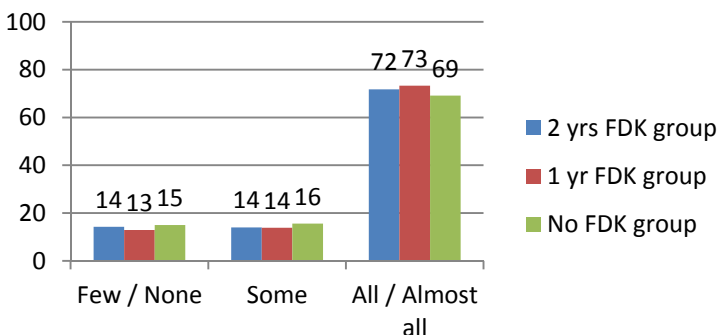
Anxious and fearful behaviour

Children who reach **all or almost all** of the developmental expectations rarely or never show most of the anxious behaviours; they are happy and able to enjoy school, and are comfortable being left at school by caregivers



Aggressive behaviour

Children who reach **all or almost all** of the developmental expectations rarely or never show most of the anxious behaviours; they are happy and able to enjoy school, and are comfortable being left at school by caregivers

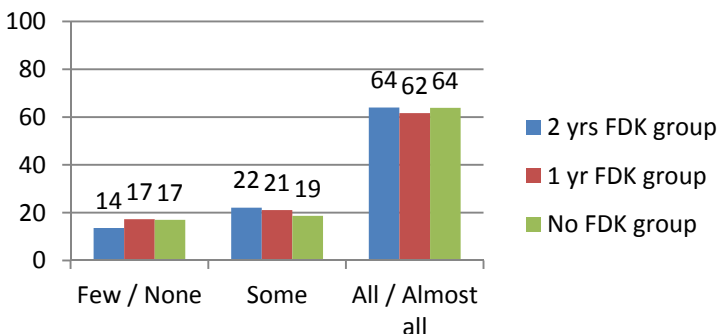


Hyperactivity and inattention

Children who reach **all or almost all** of the developmental expectations never show most of the hyperactive behaviours; they are able to concentrate, settle to chosen activities, wait their turn, and most of the time think before doing something

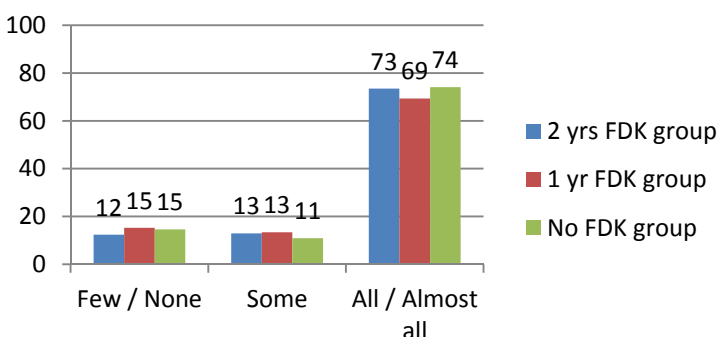


Language and Cognitive Development



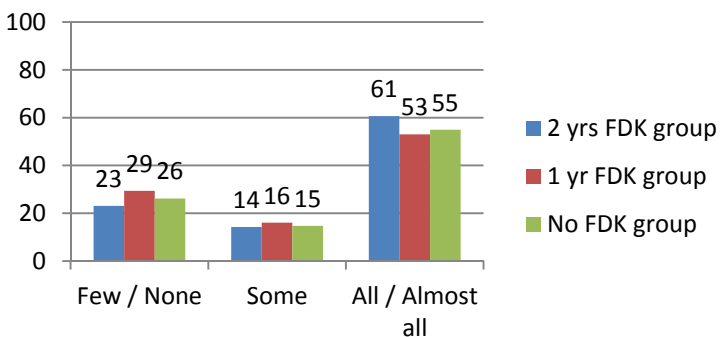
Basic literacy

Children who reach **all or almost all** of the developmental expectations have all the basic literacy skills: know how to handle a book, can identify some letters and attach sounds to some letters, show awareness of rhyming words, know the writing directions, and are able to write their own name



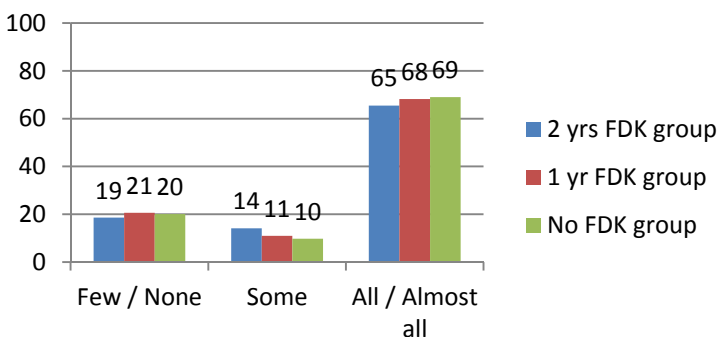
Interest in literacy / numeracy and memory

Children who reach **all or almost all** of the developmental expectations show interest in books and reading, math and numbers, and have no difficulty with remembering things name



Advanced literacy

Children who reach **all or almost all** of the developmental expectations have at least half of the advanced literacy skills: reading simple, complex words or sentences, writing voluntarily, writing simple words or sentences

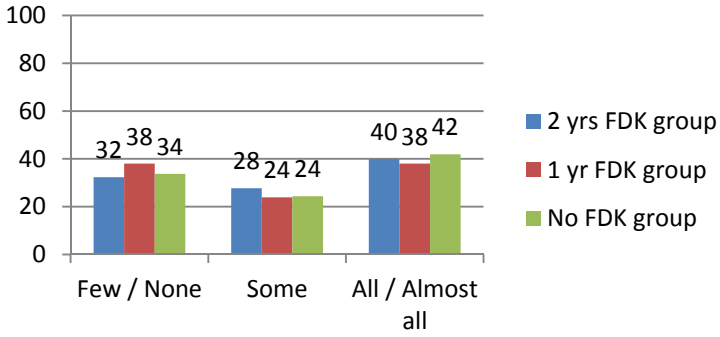


Basic numeracy

Children who reach **all or almost all** of the developmental expectations have all the basic numeracy skills: can count to 20 and recognize shapes and numbers, compare numbers, sort and classify, use one-to-one correspondence, and understand simple time concepts



Communications Skills and General Knowledge



Communication skills and General knowledge

Children who reach **all or almost all** of the developmental expectations have excellent or very good communication skills; can communicate easily and effectively, can participate in story-telling or imaginative play, articulates clearly, show adequate general knowledge, and are proficient in their native language



Descriptive Statistics (JK Year 1)

Comparisons of KPS Groups

The children participating in the FDK ELP project received a Kindergarten Parent Survey (KPS) for their parent/guardian to complete. Out of the 2,255 Junior Kindergarten children that were valid for ELP analyses, 924 had a KPS completed by their parent/guardian. The table below compares demographic variables for JK children with KPS and those without KPS.

Gender	Count (%)				<i>p</i> -value
	KPS		No KPS		
Girl	454	49.1%	689	51.8%	.219
Boy	470	50.9%	642	48.2%	

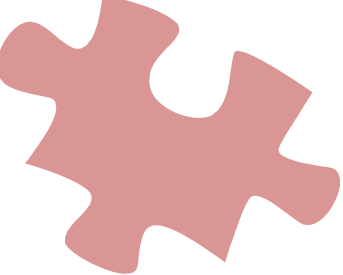
	KPS	No KPS	<i>p</i> -value
N	924	1331	0.943
Mean Age	4.99	4.99	

English / French as a second language	Count (%)			
	KPS		No KPS	
No E/FSL	711	76.9%	967	72.7%
E/FSL	212	22.9%	363	27.3%
Missing	1	0.1%	1	0.1%

French Immersion	Count (%)			
	KPS		No KPS	
Not French Immersion	836	90.5%	1230	92.4%
French Immersion	86	9.3%	99	7.4%
Missing	2	0.2%	2	0.2%

Aboriginal status	Count (%)			
	KPS		No KPS	
Not Aboriginal	814	88.1%	1127	84.7%
Aboriginal	7	0.8%	13	1.0%
Missing	103	11.1%	191	14.4%





The table below illustrates the average domain scores for those children with a completed KPS and those without. Children in the No KPS group have significantly lower mean domain scores in all five EDI domains than children in the KPS group.

Domain	KPS			No KPS			p-value
	N	Mean	SD	N	Mean	SD	
Physical Health & Well-being	924	8.70	1.37	1330	8.27	1.54	<.001
Social Competence	924	8.49	1.73	1331	7.94	1.98	<.001
Emotional Maturity	917	8.01	1.45	1323	7.67	1.61	<.001
Language & Cognitive Development	918	8.32	1.71	1327	7.72	2.10	<.001
Communication Skills & General Knowledge	924	7.75	2.43	1331	7.01	2.77	<.001

The table below indicates the percentage of children that are in the lowest 10th percentile for each domain, based on the number of children valid for analyses. Children in the No KPS group have significantly higher vulnerability rates than children in the KPS group.

	KPS		No KPS		p-value
	N vuln.	% vuln.	N vuln.	% vuln.	
Physical Health & Well-being	149	16.1%	358	26.9%	<.001
Social Competence	75	8.1%	183	13.7%	<.001
Emotional Maturity	98	10.7%	223	16.9%	<.001
Language & Cognitive Development	84	9.2%	247	18.6%	<.001
Communication Skills & General Knowledge	109	11.8%	250	18.8%	<.001
Vulnerable on one or more EDI domains	275	29.8%	583	43.8%	<.001

Domain Scores by FDK Group and KPS Group

	2 years FDK group				1 year FDK group				No FDK group			
	No KPS		KPS		No KPS		KPS		No KPS		KPS	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Physical Health & Well-being	8.22	1.59	8.63	1.39	8.30	1.50	8.71	1.40	8.32	1.53	8.79	1.32
Social Competence	7.82	2.02	8.44	1.71	8.02	1.96	8.66	1.48	8.02	1.95	8.41	1.91
Emotional Maturity	7.58	1.63	7.94	1.50	7.75	1.59	8.18	1.29	7.72	1.61	7.95	1.50
Language & Cognitive Development	7.83	1.98	8.45	1.64	7.53	2.19	8.29	1.61	7.76	2.17	8.20	1.84
Communication Skills & General Knowledge	7.05	2.70	7.83	2.42	6.83	2.84	7.68	2.39	7.13	2.79	7.72	2.48

Vulnerability by FDK Group and KPS group

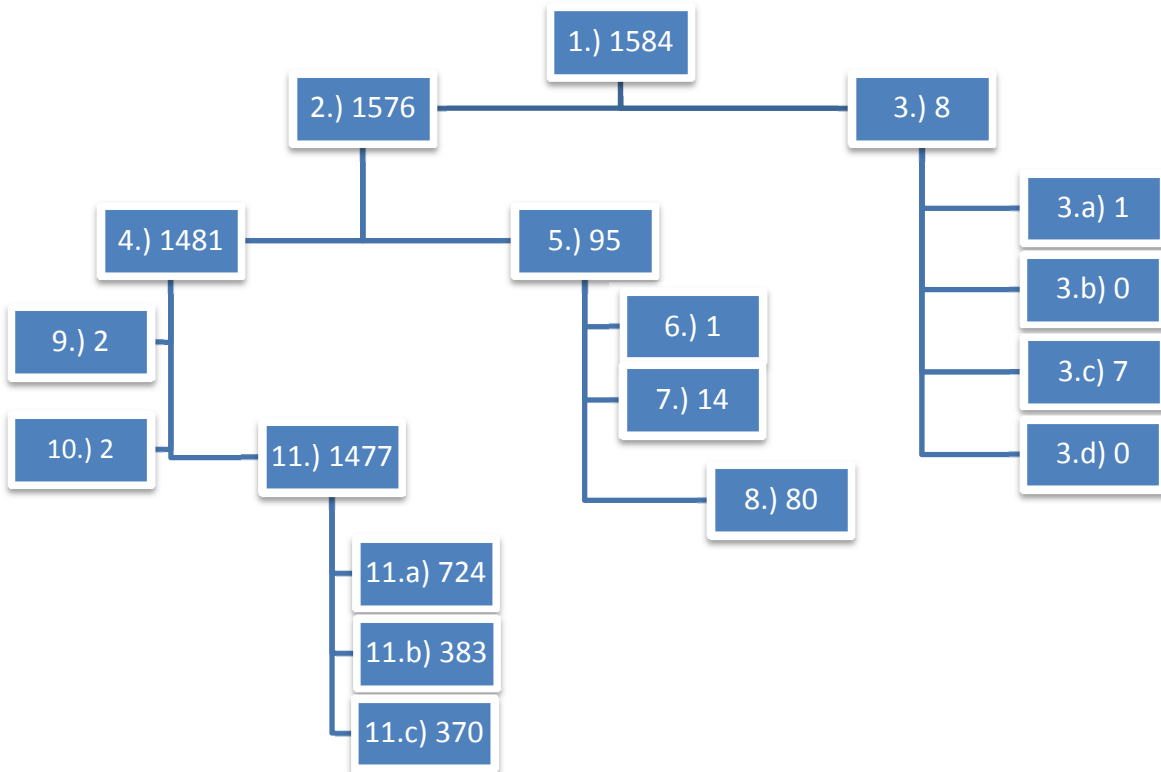
	2 years FDK group				1 year FDK group				No FDK group			
	KPS		No KPS		KPS		No KPS		KPS		No KPS	
	N vuln.	% vuln.	N vuln.	% vuln.	N vuln.	% vuln.	N vuln.	% vuln.	N vuln.	% vuln.	N vuln.	% vuln.
Physical Health & Well-being	73	19.8	170	31.2	30	12.7	88	22.1	46	14.4	100	25.8
Social Competence	33	9.0	83	15.2	10	4.2	50	12.5	32	10.0	50	12.9
Emotional Maturity	44	12.0	100	18.3	20	8.4	56	14.0	34	10.7	67	17.3
Language & Cognitive Development	26	7.1	89	16.3	20	8.4	85	21.3	38	11.9	73	18.9
Communication Skills & General Knowledge	39	10.6	100	18.3	29	12.2	81	20.3	41	12.9	69	17.8
Vulnerable on one or more EDI domains	116	31.5	255	46.8	62	26.2	167	41.9	97	30.4	161	41.6



Section I: Year 1

Part B. Senior Kindergarten

Number of Senior Kindergarten Children in ELP EDI and KPS Analyses



1. Total SK ELP (with consent) questionnaires completed.
2. Questionnaires for children in class more than 1 month.
3. Questionnaires for children in class other than in class more than 1 month
 - a. in class <1 month
 - b. moved out of class
 - c. moved out of school
 - d. other
4. Questionnaires without Special Needs.
5. Questionnaires labelled as Special Needs or missing Special Needs assignment.
6. Special Needs children with incomplete questionnaires (missing more than one domain).
7. Questionnaires missing Special Needs assignment.
8. Questionnaires valid for analyses in reports for children with Special Needs.
9. Non Special Needs children with incomplete questionnaires (missing more than one domain)
10. Children missing an FDK status group.
11. Questionnaires valid for analyses in reports for children without Special Needs.
 - a. 2 years FDK group
 - b. 1 year FDK group
 - c. No FDK group

Descriptive Statistics for Year 1 Senior Kindergarten by FDK Group

Overall, out of 1,584 EDI completed for children in Senior Kindergarten, 1,477 contained valid data for summary analyses (93.2%). 81 out of 1,584 (approximately 5%) of children were reported as having Special Needs. The 2 years FDK group had approximately twice the percentage of Special Needs children compared to the 1 year FDK group and the No FDK group, respectively ($p = .028$).

The tables below describe the composition of each of the three different FDK groups. These tables demonstrate that the groups are relatively similar in their demographic composition.

Gender	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
Girl	370 (51.1%)	193 (50.4%)	185 (50.0%)
Boy	354 (48.9%)	190 (49.6%)	185 (50.0%)

English/French as a Second Language	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
E/FSL	142 (19.6%)	81 (21.1%)	89 (24.1%)
No E/FSL	582 (80.4%)	302 (78.9%)	281 (75.9%)
Missing	0 (0.0%)	0 (0.0%)	0 (0.0%)

First Language	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
English	499 (68.9%)	252 (65.8%)	249 (67.3%)
French	15 (2.1%)	14 (3.7%)	13 (3.5%)
Other only	50 (6.9%)	30 (7.8%)	34 (9.2%)
English & French	109 (15.1%)	58 (15.1%)	31 (8.4%)
English & Other	22 (3.0%)	10 (2.6%)	13 (3.5%)
French & Other	4 (0.6%)	7 (1.8%)	1 (0.3%)
Two other languages	3 (0.4%)	0 (0.0%)	4 (1.1%)
Missing	22 (3.0%)	12 (3.1%)	25 (6.8%)

French Immersion	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
French Immersion	40 (5.5%)	56 (14.6%)	100 (27.0%)
Non-French Immersion	684 (94.5%)	327 (85.4%)	270 (73.0%)
Missing	0 (0.0%)	0 (0.0%)	0 (0.0%)

Aboriginal	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
Aboriginal	11 (1.5%)	2 (0.5%)	5 (1.4%)
Not Aboriginal	549 (75.8%)	327 (85.4%)	325 (87.8%)
Missing	164 (22.7%)	54 (14.1%)	40 (10.8%)

ELP Year 1 Senior Kindergarten Results 2010/2011

Overall Comparisons by FDK Group

The EDI was completed for 1,477 non-Special Needs Senior Kindergarten students in Year 1 of the ELP FDK project. The tables and graph below illustrate descriptive statistics by FDK group.

	2 years FDK group	1 year FDK group	No FDK group	<i>p</i> -value
Girls	370	193	185	0.936
Boys	354	190	185	

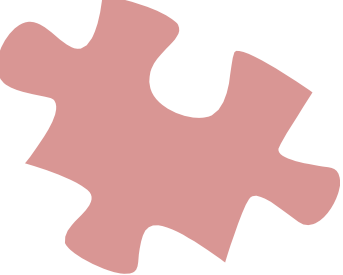
	2 years FDK group	1 year FDK group	No FDK group	<i>p</i> -value
N	724	383	370	0.500
Mean Age	5.87	5.86	5.89	
SD	0.36	0.37	0.33	

The *p*-values in the above tables demonstrate that the three groups do not statistically differ in terms of the composition of gender or age.

The table below outlines the mean scores and standard deviations for each domain by FDK group. The *p*-values in this table indicate that there are significant group differences in the Physical Health and Well-being domain, the Language and Cognitive Development domain, and the Communication and General knowledge domain. Results from *post hoc* analyses revealed no significant differences on the Physical Health and Well-being domain between the 2 years FDK group and the 1 year FDK group ($p=.059$), between the 2 years FDK group and the No FDK group ($p=.161$), or between the 1 year FDK group and the No FDK group ($p=.927$). Similarly, *post hoc* analyses found no significant differences in the Language and Cognitive Development domain between the 2 years FDK group and the 1 year FDK group ($p=.162$), between the 2 years FDK group and the No FDK group ($p=.069$), or between the 1 year FDK group and the No FDK group ($p=.929$). *Post hoc* analyses revealed that the 2 years FDK group had significantly higher Communication Skills and General Knowledge domain scores than the No FDK group ($p=.023$).

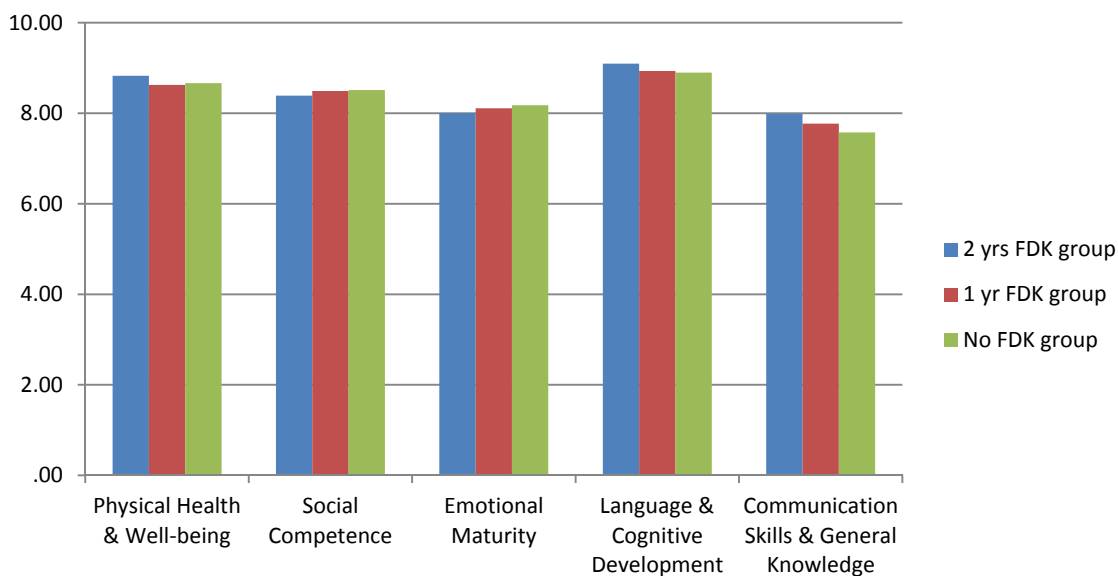
Note: As of the late summer 2012, neighbourhood-level index of socioeconomic status (Social Risk Index, or SRI), became available. The domain score comparisons by FDK group were repeated with SRI as a covariate, and the results are in Appendix D.





Domains	Mean (SD)			p-value
	2 years FDK group	1 year FDK group	No FDK group	
Physical Health & Well-being	8.83 (1.35)	8.63 (1.37)	8.66 (1.48)	0.040
Social Competence	8.39 (1.83)	8.49 (1.92)	8.51 (1.72)	0.483
Emotional Maturity	8.00 (1.51)	8.11 (1.61)	8.18 (1.49)	0.190
Language & Cognitive Development	9.09 (1.31)	8.93 (1.45)	8.90 (1.46)	0.045
Communication Skills & General Knowledge	7.99 (2.42)	7.77 (2.42)	7.58 (2.51)	0.027

Comparison of Means



Percentage of Vulnerable Children (Year 1 SK)

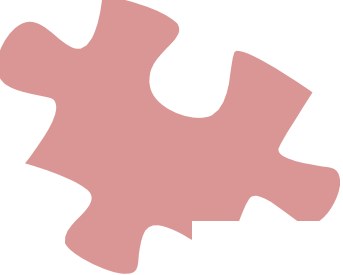
“Vulnerable” describes children whose domain scores are in the lowest 10th percentile of a distribution. The table and graph below illustrate the percentage of children in each FDK group who score is in the lowest 10th percentile based on the Ontario Baseline distribution.

The *p*-values in the below table illustrate that there are no significant differences in vulnerability between the three groups in any of the five domains.

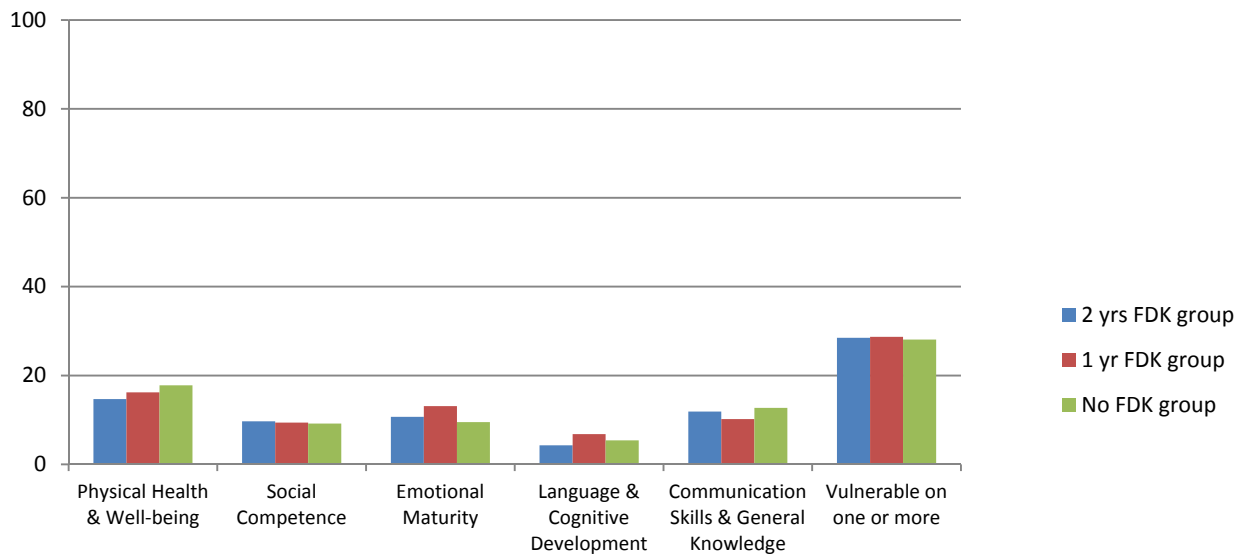
Note: As of the late summer 2012, neighbourhood-level index of socioeconomic status (Social Risk Index, or SRI), became available. The vulnerability comparisons by FDK group were repeated with SRI as a covariate, and the results are in Appendix E.

EDI Domains	% Vulnerable (ON Baseline cut-offs)			<i>p</i> -value
	2 years FDK group	1 year FDK group	No FDK group	
Physical Health & Well-being	14.7%	16.2%	17.8%	0.393
Social Competence	9.7%	9.4%	9.2%	0.966
Emotional Maturity	10.7%	13.1%	9.5%	0.271
Language & Cognitive Development	4.3%	6.8%	5.4%	0.201
Communication Skills & General Knowledge	11.9%	10.2%	12.7%	0.539
Vulnerable on one or more EDI domains	28.5%	28.7%	28.1%	0.983





Vulnerability (%) by Domain



Group Comparisons (SK) ELP Year 1 2010/2011

The tables below compare factors that influence EDI results. Comparisons are by demographic information (i.e. gender, age, etc.) and FDK group. Please note that higher mean scores indicate better levels of readiness-to-learn at school

The effect size is an accepted indicator of the strength of the relationship between two variables and assesses whether the differences are meaningful or not. Since it is independent of the measurement or sample size, the effect size of a difference between two groups is the best indicator of how meaningful this difference is. In this report, the effect size is computed as follows:

$$\frac{\text{mean}(\text{comparison group}) - \text{mean}(\text{reference group})}{\text{SD}(\text{reference group})}$$

It is customary to interpret the effect sizes of 0 to 0.3 as small, 0.3 to 0.8 as moderate, and greater than 0.8 as large. Negative effect sizes mean the comparison group has a lower mean score than the reference group.

*Note that the reference group used in the calculations of effect size is indicated with an asterisk.

1. Gender

	2 years FDK group					1 year FDK group					No FDK group				
	Girls*		Boys		Effect Size	Girls*		Boys		Effect Size	Girls*		Boys		Effect Size
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Physical health & Well-being	8.90	1.35	8.75	1.34	0.11	8.70	1.44	8.55	1.29	0.10	8.72	1.46	8.61	1.50	0.08
Social Competence	8.73	1.72	8.03	1.87	0.41	8.72	1.85	8.26	1.96	0.25	8.74	1.67	8.28	1.75	0.28
Emotional Maturity	8.37	1.38	7.62	1.55	0.54	8.42	1.49	7.80	1.67	0.42	8.49	1.48	7.86	1.43	0.43
Language & Cognitive development	9.25	1.22	8.93	1.39	0.26	9.02	1.43	8.85	1.47	0.12	9.05	1.45	8.75	1.46	0.21
Communication & General knowledge	8.29	2.31	7.67	2.49	0.27	7.97	2.38	7.56	2.44	0.17	7.84	2.52	7.31	2.48	0.21



2. Age of Child (mean age is 5.89 years)

	2 years FDK group					1 year FDK group					No FDK group				
	Above mean age*		Below mean age		Effect Size	Above mean age*		Below mean age		Effect Size	Above mean age*		Below mean age		Effect Size
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Physical health & Well-being	8.97	1.23	8.68	1.44	0.24	8.76	1.32	8.50	1.40	0.20	8.78	1.42	8.54	1.54	0.17
Social Competence	8.55	1.82	8.23	1.82	0.18	8.67	1.74	8.32	2.07	0.20	8.50	1.74	8.53	1.71	-0.02
Emotional Maturity	8.08	1.54	7.92	1.48	0.10	8.27	1.58	7.95	1.63	0.20	8.21	1.51	8.14	1.47	0.05
Language & Cognitive development	9.25	1.24	8.94	1.37	0.25	9.18	1.23	8.69	1.60	0.40	8.98	1.44	8.81	1.48	0.12
Communication & General knowledge	8.15	2.37	7.82	2.46	0.14	8.11	2.25	7.44	2.53	0.30	7.75	2.45	7.39	2.56	0.15

3. Children with E/FSL status

	2 years FDK group					1 year FDK group					No FDK group				
	Not E/FSL*		E/FSL		Effect Size	Not E/FSL*		E/FSL		Effect Size	Not E/FSL*		E/FSL		Effect Size
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Physical health & Well-being	8.81	1.40	8.91	1.11	-0.07	8.59	1.38	8.75	1.32	-0.12	8.55	1.53	9.03	1.23	-0.31
Social Competence	8.51	1.78	7.89	1.94	0.35	8.42	1.95	8.75	1.78	-0.17	8.50	1.72	8.56	1.75	-0.03
Emotional Maturity	8.08	1.51	7.69	1.49	0.26	8.10	1.65	8.14	1.46	-0.02	8.18	1.51	8.18	1.42	0.00
Language & Cognitive development	9.17	1.29	8.79	1.39	0.29	8.98	1.45	8.77	1.45	0.14	8.93	1.48	8.79	1.40	0.09
Communication & General knowledge	8.26	2.26	6.89	2.72	0.61	7.97	2.33	7.01	2.57	0.41	7.78	2.34	6.95	2.91	0.35

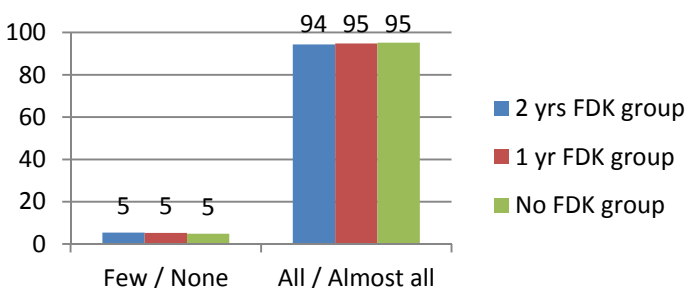


Subdomain Profiles (Year 1 SK)

Each of the five domains is divided into sub-domains, except for Communication Skills and General Knowledge. Based on skills and abilities that each sub-domain represents, children are classified as being at/above developmental expectations (reach the expectations for all or most of the sub-domain items), in the middle (reach the expectations for some of the sub-domain items), and below developmental expectations (reach expectations for none or few of the sub-domain items). Note that the Physical readiness for school day and the Physical independence subdomains do not feature a middle category because of the definitive nature of the questions they are comprised of.

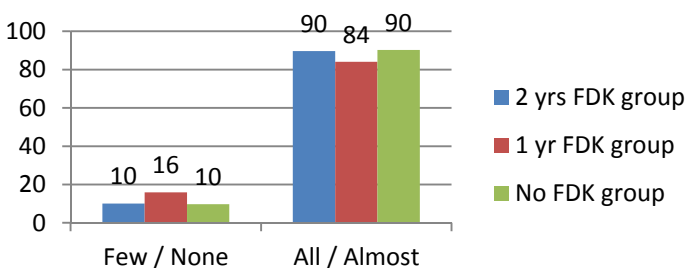
The graphs below provide a comparison between the three FDK groups for each of the 16 subdomains. The graphs below are percentages of children in each subdomain category.

Physical Health & Well-being



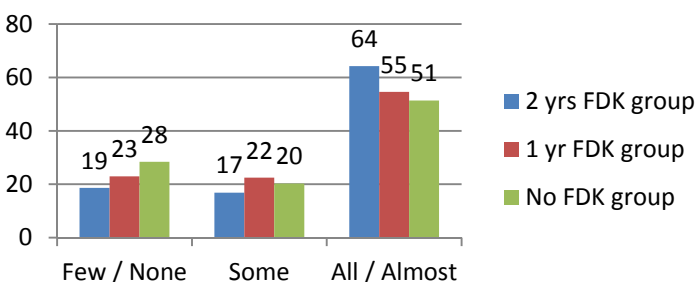
Physical readiness for school day

Children who reach **all or almost all** of the developmental expectations never or almost never experienced being dressed inappropriately for school activities, or coming to school tired, late or hungry



Physical independence

Children who reach **all or almost all** of the developmental expectations are independent in looking after their needs, have an established hand preference, are well coordinated, and do not suck a thumb/finger

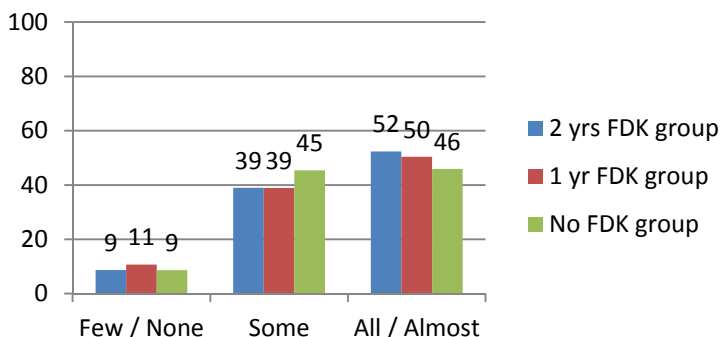


Gross and fine motor skills

Children who reach **all or almost all** of the developmental expectations have an excellent ability to physically tackle the school day and have excellent or good gross and fine motor skills.

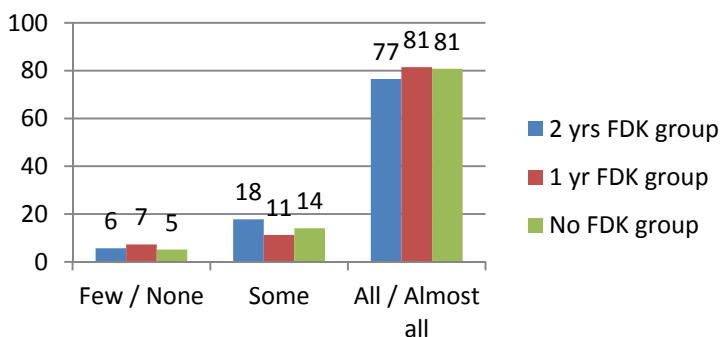


Social Competence



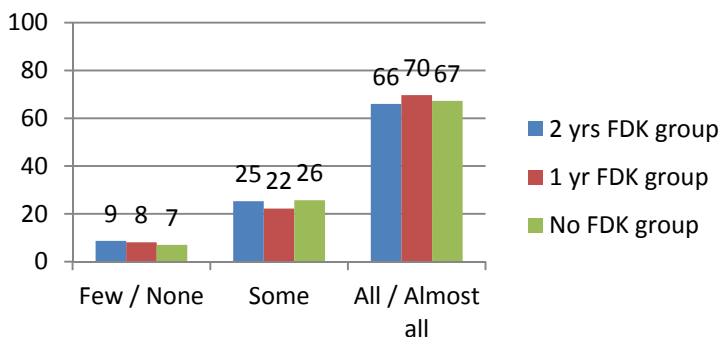
Overall social competence

Children who reach **all or almost all** of the developmental expectations have excellent or good overall social development, very good ability to get along with other children and play with various children; usually cooperative and self-confident.



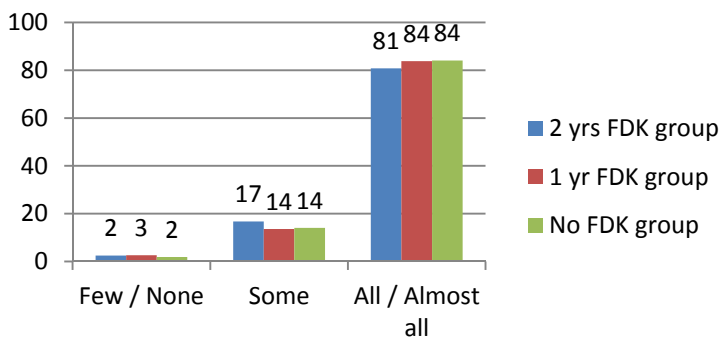
Responsibility and respect

Children who reach **all or almost all** of the developmental expectations always or most of the time show respect for others and for property, follow rules and take care of materials, accept responsibility for actions, and show self-control.



Approaches to learning

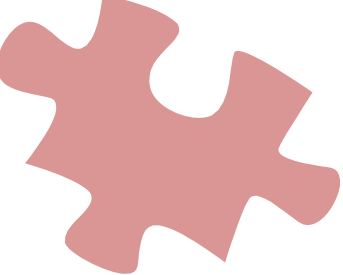
Children who reach **all or almost all** of the developmental expectations always or most of the time work neatly, work independently, solve problems, follow instructions and class routines, and easily adjust to changes.



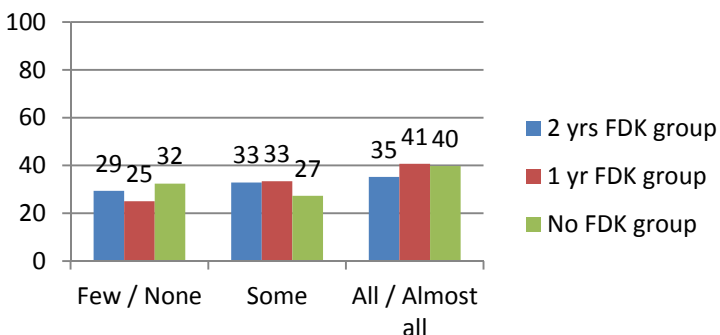
Readiness to explore new things

Children who reach **all or almost all** of the developmental expectations are curious about the surrounding world and are eager to explore new books, toys, and games.



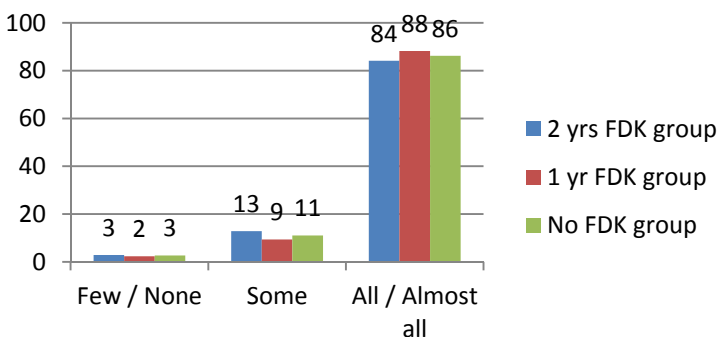


Emotional Maturity



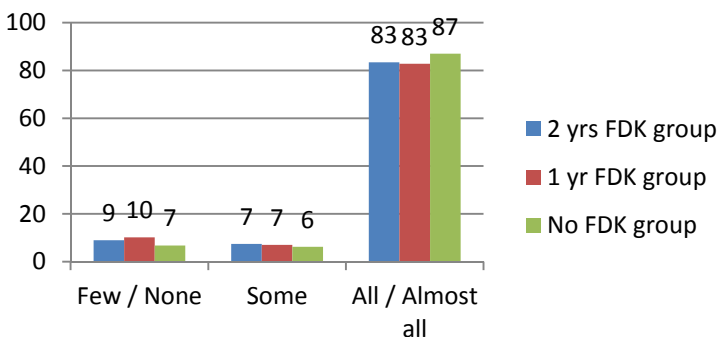
Prosocial and helping behaviour

Children who reach **all or almost all** of the developmental expectations show most of the helping behaviours: helping someone hurt, sick or upset, offering to help spontaneously, invite bystanders to join in



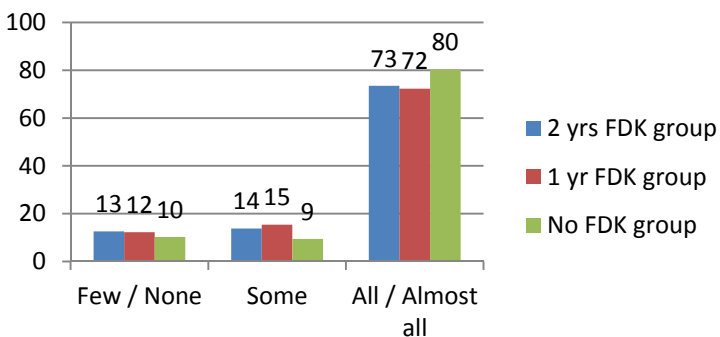
Anxious and fearful behaviour

Children who reach **all or almost all** of the developmental expectations rarely or never show most of the anxious behaviours; they are happy and able to enjoy school, and are comfortable being left at school by caregivers



Aggressive behaviour

Children who reach **all or almost all** of the developmental expectations rarely or never show most of the anxious behaviours; they are happy and able to enjoy school, and are comfortable being left at school by caregivers

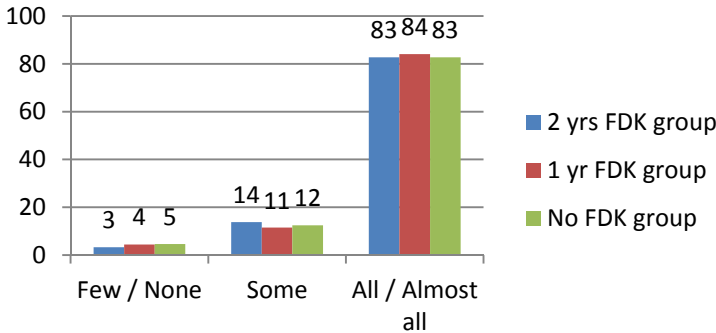


Hyperactivity and inattention

Children who reach **all or almost all** of the developmental expectations never show most of the hyperactive behaviours; they are able to concentrate, settle to chosen activities, wait their turn, and most of the time think before doing something

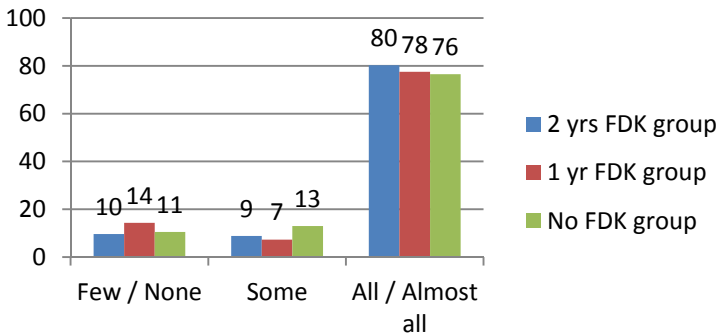


Language and Cognitive Development



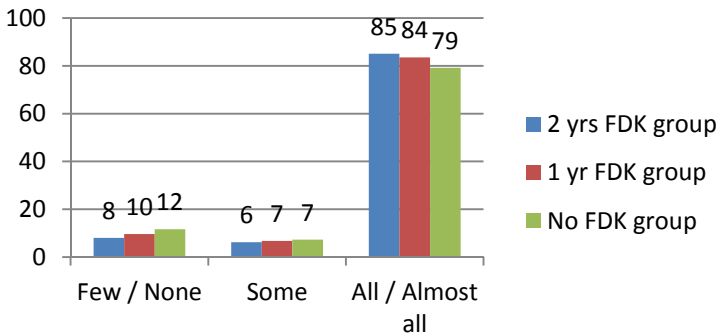
Basic literacy

Children who reach **all or almost all** of the developmental expectations have all the basic literacy skills: know how to handle a book, can identify some letters and attach sounds to some letters, show awareness of rhyming words, know the writing directions, and are able to write their own name



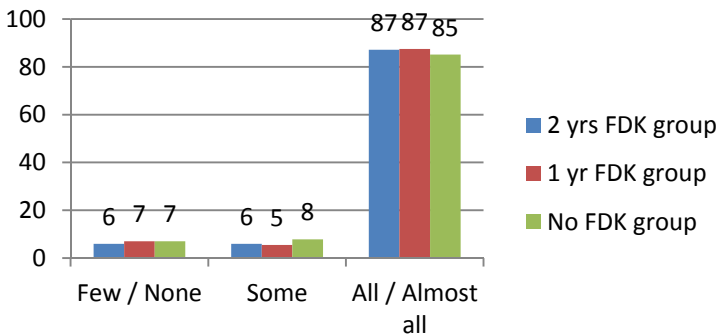
Interest in literacy / numeracy and memory

Children who reach **all or almost all** of the developmental expectations show interest in books and reading, math and numbers, and have no difficulty with remembering things name



Advanced literacy

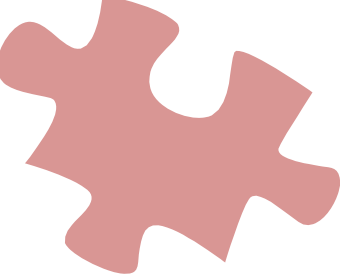
Children who reach **all or almost all** of the developmental expectations have at least half of the advanced literacy skills: reading simple, complex words or sentences, writing voluntarily, writing simple words or sentences



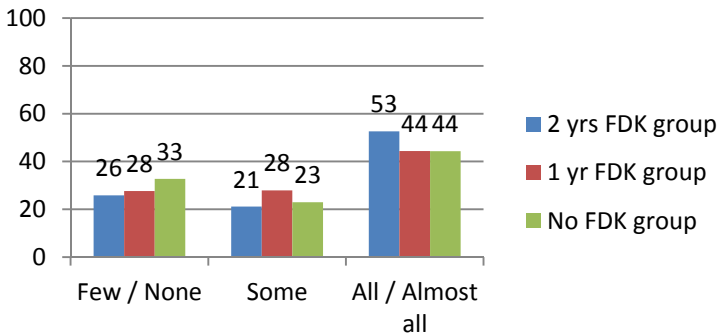
Basic numeracy

Children who reach **all or almost all** of the developmental expectations have all the basic numeracy skills: can count to 20 and recognize shapes and numbers, compare numbers, sort and classify, use one-to-one correspondence, and understand simple time concepts





Communications Skills and General Knowledge



Communication skills and General knowledge

Children who reach **all or almost all** of the developmental expectations have excellent or very good communication skills; can communicate easily and effectively, can participate in story-telling or imaginative play, articulates clearly, show adequate general knowledge, and are proficient in their native language

Descriptive Statistics (Year 1 SK) Comparisons of KPS Groups

The children participating in the FDK ELP project received a Kindergarten Parent Survey (KPS) for their parent/guardian to complete. Out of the 1,477 Senior Kindergarten children that were valid for ELP analyses, 581 had a KPS completed by their parent/guardian. The table below compares demographic variables for SK children with KPS and those without KPS.

Gender	Count (%)				p-value
	KPS		No KPS		
Girl	299	51.5%	449	50.1%	0.632
Boy	282	48.5%	447	49.9%	

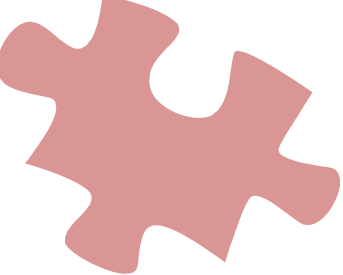
	KPS	No KPS	p-value
N	581	896	.612
Mean Age	5.87	5.87	

English / French as a second language	Count (%)			
	KPS		No KPS	
No E/FSL	485	83.5%	680	75.9%
E/FSL	96	16.5%	216	24.1%
Missing	0	0%	0	0%

French Immersion	Count (%)			
	KPS		No KPS	
Not French Immersion	463	79.7%	818	91.3%
French Immersion	118	20.3%	78	8.7%
Missing	0	0%	0	0%

Aboriginal status	Count (%)			
	KPS		No KPS	
Not Aboriginal	474	81.6%	727	81.1%
Aboriginal	7	1.2%	11	1.2%
Missing	100	17.2%	158	17.6%





The table below illustrates the average domain scores for those children with a completed KPS and those without. Children in the No KPS group have significantly lower mean domain scores on all five EDI domains than children in the KPS group.

Domain	KPS			No KPS			p-value
	N	Mean	SD	N	Mean	SD	
Physical Health & Well-being	580	8.91	1.19	895	8.62	1.49	< .001
Social Competence	581	8.69	1.61	896	8.29	1.94	< .001
Emotional Maturity	580	8.27	1.40	892	7.94	1.60	< .001
Language & Cognitive Development	581	9.22	1.24	894	8.87	1.46	< .001
Communication Skills & General Knowledge	581	8.21	2.29	896	7.58	2.51	< .001

The table below indicates the percentage of children that are in the lowest 10th percentile for each domain, based on the number of children valid for analyses. Children in the No KPS group have significantly higher vulnerability rates than children in the KPS group in every domain except for the Language and Cognitive Development domain.

Domains	KPS		No KPS		p-value
	N vuln.	% vuln.	N vuln.	% vuln.	
Physical Health & Well-being	67	11.6%	167	18.7%	< .001
Social Competence	36	6.2%	104	11.6%	0.001
Emotional Maturity	46	7.9%	116	13.0%	0.002
Language & Cognitive Development	23	4.0%	54	6.0%	0.093
Communication Skills & General Knowledge	51	8.8%	121	13.5%	0.006
Vulnerable on one or more EDI domains	124	21.3%	296	33.0%	< .001

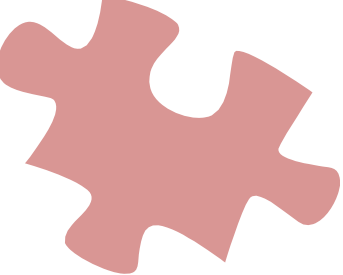
Domain Scores by FDK Group and KPS Group

	2 years FDK group				1 year FDK group				No FDK group			
	KPS		No KPS		KPS		No KPS		KPS		No KPS	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Physical Health & Well-being	9.01	1.15	8.71	1.45	8.70	1.17	8.58	1.47	8.89	1.26	8.50	1.60
Social Competence	8.63	1.68	8.71	1.90	8.74	1.45	8.34	2.14	8.74	1.61	8.35	1.79
Emotional Maturity	8.23	1.40	7.86	1.56	8.30	1.33	8.00	1.75	8.34	1.48	8.06	1.49
Language & Cognitive Development	9.30	1.23	8.97	1.35	9.09	1.32	8.84	1.52	9.19	1.19	8.69	1.60
Communication Skills & General Knowledge	8.40	2.23	7.72	2.50	8.02	2.23	7.62	2.51	8.02	2.43	7.25	2.52

Vulnerability by FDK Group and KPS group

	2 years FDK group				1 year FDK group				No FDK group			
	KPS		No KPS		KPS		No KPS		KPS		No KPS	
	N	%	N	%	N	%	N	%	N	%	N	%
Physical Health & Well-being	31	11.0	75	17.0	18	12.6	44	18.3	18	11.5	48	22.4
Social Competence	18	6.4	52	11.8	6	4.2	30	12.5	12	7.7	22	10.3
Emotional Maturity	23	8.2	54	12.2	12	8.4	38	15.8	11	7.1	24	11.2
Language & Cognitive Development	10	3.5	21	4.8	6	4.2	20	8.3	7	4.5	13	6.1
Communication Skills & General Knowledge	25	8.9	61	13.8	9	6.3	30	12.5	17	10.9	30	14.0
Vulnerable on one or more EDI domains	58	20.6	148	33.5	32	22.4	78	32.5	34	21.8	70	32.7





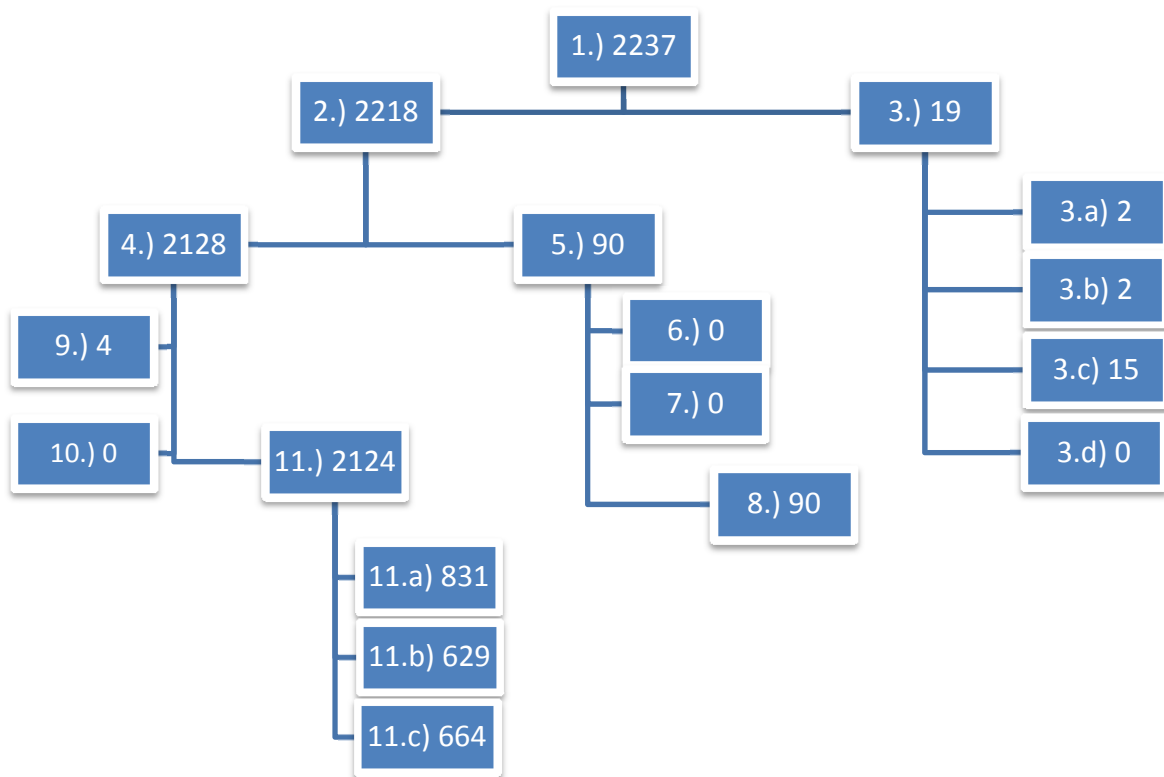
Section II
Descriptive Analyses of EDI and KPS data
Year 2 (2011/2012)



Section II. Year 2

Part A. Junior Kindergarten

Number of Junior Kindergarten Children in ELP EDI Analyses



1. Total JK ELP (with consent) questionnaires completed.
2. Questionnaires for children in class more than 1 month.
3. Questionnaires for children in class other than in class more than 1 month
 - a. in class <1 month
 - b. moved out of class
 - c. moved out of school
 - d. other
4. Questionnaires without Special Needs.
5. Questionnaires labelled as Special Needs or missing Special Needs assignment.
6. Special Needs children with incomplete questionnaires (missing more than one domain).
7. Questionnaires missing Special Needs assignment.
8. Questionnaires valid for analyses in reports for children with Special Needs.
9. Non Special Needs children with incomplete questionnaires (missing more than one domain)
10. Children missing an FDK status group.
11. Questionnaires valid for analyses in reports for children without Special Needs.
 - a. 2 years FDK group
 - b. 1 year FDK group
 - c. No FDK group

Descriptive Statistics for Year 2 Junior Kindergarten by FDK Group

Overall, out of 2,237 EDIs completed for children in Junior Kindergarten, 2,124 contained valid data for summary analyses (94.9%). 90 out of 2,237 (approximately 4%) of children were reported as having Special Needs. These rates were similar across the three study groups.

The tables below describe the composition of each of the three different FDK groups. These tables demonstrate that the groups are relatively similar in their demographic composition.

Gender	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
Girl	408 (49.1%)	303 (48.2%)	357 (53.8%)
Boy	423 (50.9%)	326 (51.8%)	307 (46.2%)

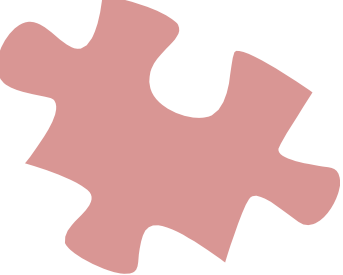
English/French as a Second Language	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
E/FSL	187 (22.5%)	105 (16.7%)	209 (31.5%)
No E/FSL	644 (77.5%)	524 (83.3%)	454 (68.4%)
Missing	0 (0%)	0 (0%)	1 (0.2%)

First Language	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
English	537 (64.6%)	468 (74.4%)	345 (52.0%)
French	72 (8.7%)	41 (6.5%)	57 (8.6%)
Other only	59 (7.1%)	36 (5.7%)	72 (10.8%)
English & French	92 (11.1%)	33 (5.2%)	123 (18.5%)
English & Other	29 (3.5%)	12 (1.9%)	21 (3.2%)
French & Other	19 (2.3%)	3 (0.5%)	22 (3.3%)
Two other languages	1 (0.1%)	1 (0.2%)	0 (0%)
Missing	22 (2.6%)	35 (5.6%)	0 (0%)

French Immersion	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
French Immersion	13 (1.6%)	2 (0.3%)	105 (15.8%)
Non-French Immersion	818 (98.4%)	627 (99.7%)	559 (84.2%)
Missing	0 (0%)	0 (0%)	0 (0%)

Aboriginal	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
Aboriginal	18 (2.2%)	7 (1.1%)	4 (0.6%)
Not Aboriginal	744 (89.5%)	552 (87.8%)	625 (94.1%)
Missing	69 (8.3%)	70 (11.1%)	35 (5.3%)





ELP Year 2 Junior Kindergarten Results 2011/2012

Overall Comparisons by FDK Group

The EDI was completed for 2,124 non-Special Needs Junior Kindergarten students in Year 2 of the ELP FDK project. The tables and graph below illustrate descriptive statistics by FDK group.

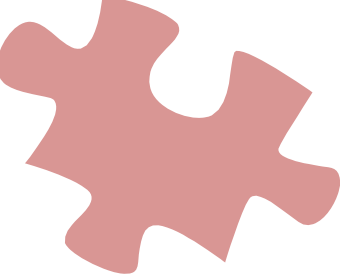
	2 years FDK group	1 year FDK group	No FDK group	<i>p</i> -value
Girls	408	303	357	0.090
Boys	423	326	307	

	2 years FDK group	1 year FDK group	No FDK group	<i>p</i> -value
N	831	629	663	0.009
Mean Age	4.76	4.81	4.77	
SD	0.30	0.31	0.31	

The *p*-values in the above tables demonstrate that the three groups do not statistically differ in terms of the composition of gender. However, there was a significant difference between the groups in age, with the 1 year FDK group having the highest mean age.

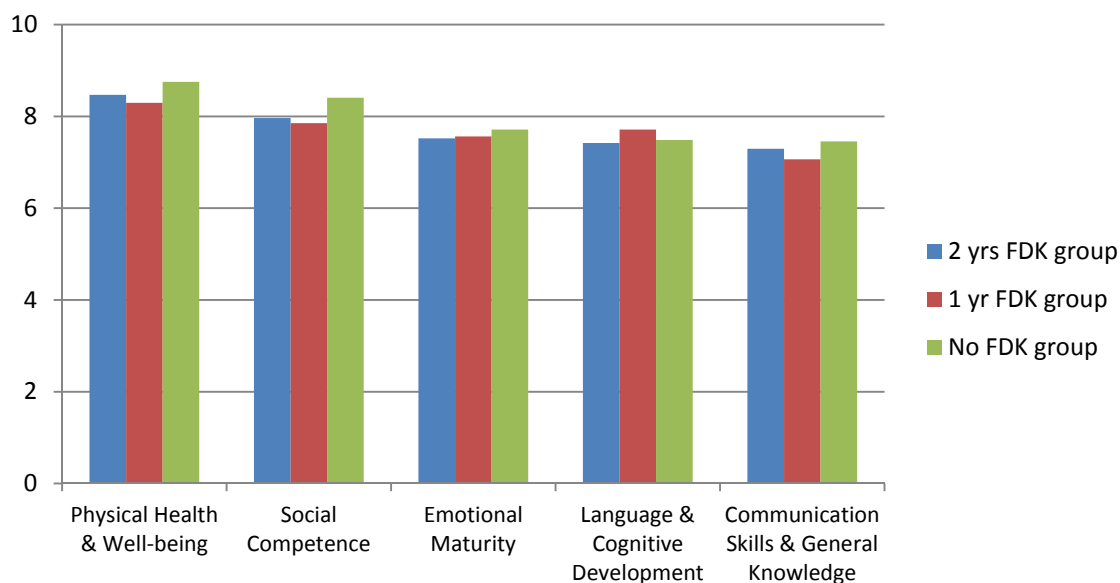
The table below outlines the mean scores and standard deviations for each domain by FDK group. The *p*-values in this table indicate that there is a significant difference between the three groups in the domains of Physical Health and Well-being, Social Competence, Language and Cognitive Development, and Communication Skills and General Knowledge. Post-hoc analyses demonstrated that the No FDK group had significantly higher domain scores than the 2 years FDK group and the 1 year FDK group in Physical Health and Well-being (The 2 years FDK group $p = .001$ and The 1 year FDK group $p < .001$) and Social Competence (The 2 years FDK group $p < .001$ and The 1 year FDK group $p < .001$). Post hoc analyses for the Language and Cognitive Development domain revealed that the 1 year FDK group had significantly higher domain scores than the 2 years FDK group ($p = .021$). Post hoc analyses for the Communication Skills and General Knowledge domain revealed that the No FDK group had significantly higher domain scores than the 2 years FDK group ($p = .024$).

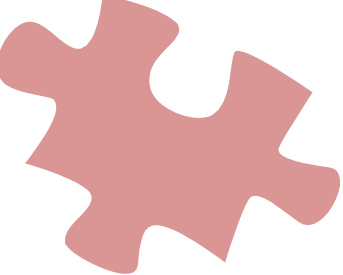
Note: As of the late summer 2012, neighbourhood-level index of socioeconomic status (Social Risk Index, or SRI), became available. The domain score comparisons by FDK group were repeated with SRI as a covariate, and the results are in Appendix F.



Domains	Mean (SD)			p-value
	2 years FDK group	1 year FDK group	No FDK group	
Physical Health & Well-being	8.47	8.30	8.75	< 0.001
Social Competence	7.96	7.85	8.41	< 0.001
Emotional Maturity	7.52	7.56	7.71	0.072
Language & Cognitive Development	7.42	7.71	7.49	0.023
Communication Skills & General Knowledge	7.30	7.07	7.46	0.031

Comparison of Means





Percentage of Vulnerable Children (Year 2 JK)

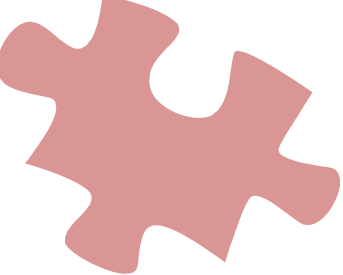
“Vulnerable” describes children whose domain scores are in the lowest 10th percentile of a distribution. The table and graph below illustrate the percentage of children in each FDK group who score is in the lowest 10th percentile based on the Ontario Baseline distribution. Please note that the Ontario Baseline 10th percentile cut-offs are based on data collected for Senior Kindergarten children, therefore it is to be expected that this Junior Kindergarten cohort of children would have higher rates of vulnerability.

The *p*-values in the table below illustrate that there is a significant difference in vulnerability between the three groups in the domain of Physical Health and Well-being and Social Competence. *Post hoc* analyses demonstrated that the No FDK group had a significantly lower percentage of vulnerability in the Physical Health and Well-being domain than the 2 years FDK group and the 1 year FDK group. *Post hoc* analyses demonstrated that the 1 year FDK group had a significantly higher percentage of vulnerability in the Social Competence domain than the 2 years FDK group and the No FDK group.

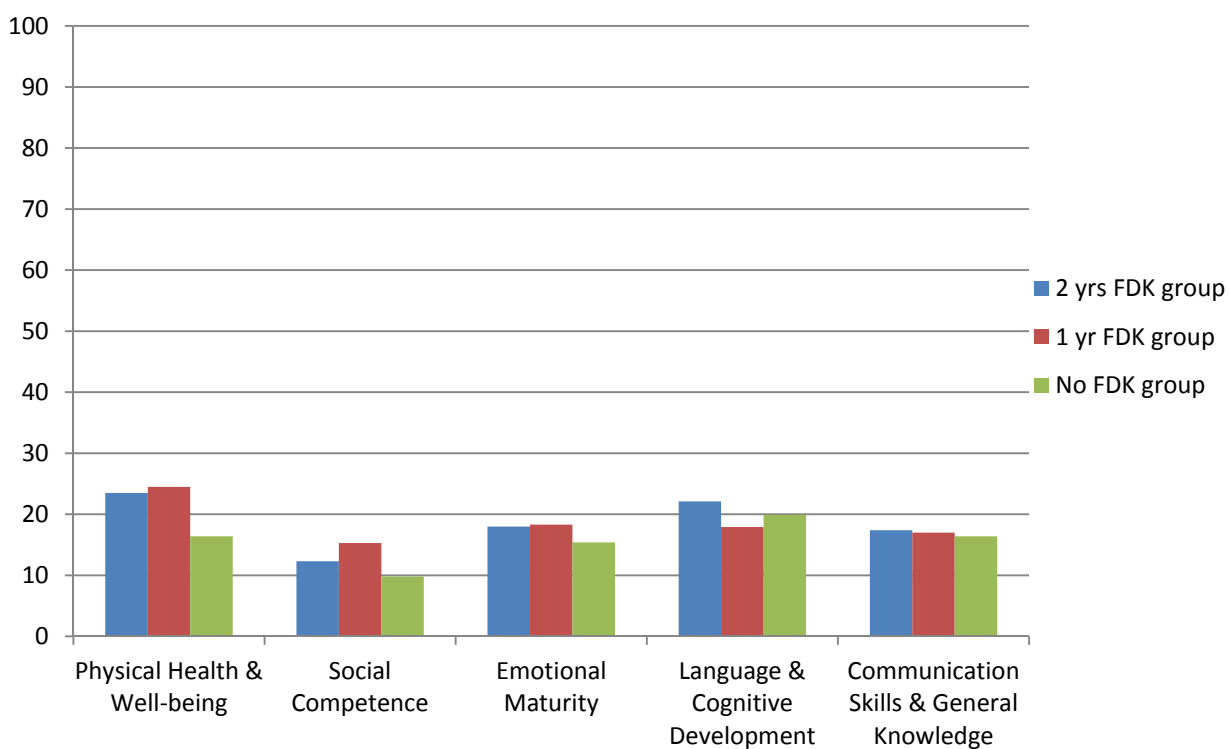
Note: As of the late summer 2012, neighbourhood-level index of socioeconomic status (Social Risk Index, or SRI), became available. The vulnerability comparisons by FDK group were repeated with SRI as a covariate, and the results are in Appendix G.

Domains	% Vulnerable (ON Baseline cut-offs)			
	2 years FDK group	1 year FDK group	No FDK group	<i>p</i> -value
Physical Health & Well-being	23.5%	24.5%	16.4%	< 0.001
Social Competence	12.3%	15.3%	9.8%	0.011
Emotional Maturity	18.0%	18.3%	15.4%	0.299
Language & Cognitive Development	22.1%	17.9%	19.9%	0.148
Communication Skills & General Knowledge	17.4%	17.0%	16.4%	0.870
Vulnerable on one or more EDI domains	43.6%	42.6%	38.0%	0.074





Vulnerability (%) by domain



Group Comparisons (JK) ELP Year 2 2011/2012

The tables below compare factors that influence EDI results. Comparisons are by demographic information (i.e. gender, age, etc.) and FDK group. Please note that higher mean scores indicate better levels of readiness-to-learn at school.

The effect size is an accepted indicator of the strength of the relationship between two variables and assesses whether the differences are meaningful or not. Since it is independent of the measurement or sample size, the effect size of a difference between two groups is the best indicator of how meaningful this difference is. In this report, the effect size is computed as follows:

$$\frac{\text{mean}(\text{comparison group}) - \text{mean}(\text{reference group})}{\text{SD}(\text{reference group})}$$

It is customary to interpret the effect sizes of 0 to 0.3 as small, 0.3 to 0.8 as moderate, and greater than 0.8 as large. Negative effect sizes mean the comparison group has a lower mean score than the reference group.

*Note that the reference group used in the calculations of effect size is indicated with an asterisk.

4. Gender

	2 years FDK group					1 year FDK group					No FDK group				
	Girls*		Boys		Effect Size	Girls*		Boys		Effect Size	Girls*		Boys		Effect Size
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Physical health & Well-being	8.71	1.40	8.24	1.52	0.34	8.41	1.58	8.19	1.37	0.14	8.98	1.24	8.49	1.57	0.40
Social Competence	8.42	1.74	7.52	2.09	0.52	8.27	1.84	7.46	2.08	0.44	8.82	1.54	7.93	1.96	0.58
Emotional Maturity	7.98	1.39	7.08	1.69	0.65	7.94	1.51	7.22	1.71	0.48	8.20	1.40	7.15	1.70	0.75
Language & Cognitive development	7.89	1.92	6.98	2.15	0.47	7.98	1.89	7.46	2.01	0.28	7.69	2.02	7.25	2.12	0.22
Communication & General knowledge	7.69	2.55	6.92	2.71	0.30	7.33	2.58	6.82	2.68	0.20	7.76	2.58	7.10	2.80	0.26

5. Age of Child (mean age is 4.77 years)

	2 years FDK group					1 year FDK group					No FDK group				
	Above mean age*		Below mean age		Effect Size	Above mean age*		Below mean age		Effect Size	Above mean age*		Below mean age		Effect Size
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Physical health & Well-being	8.65	1.41	8.30	1.52	0.25	8.43	1.41	8.14	1.55	0.21	8.94	1.19	8.57	1.60	0.31
Social Competence	8.19	1.89	7.75	2.03	0.23	7.97	2.01	7.72	2.00	0.12	8.60	1.69	8.21	1.88	0.23
Emotional Maturity	7.72	1.65	7.34	1.56	0.23	7.67	1.71	7.44	1.57	0.13	7.90	1.58	7.53	1.66	0.23
Language & Cognitive development	7.91	1.84	6.96	2.20	0.52	8.14	1.79	7.21	2.06	0.52	7.89	1.94	7.09	2.13	0.41
Communication & General knowledge	7.71	2.44	6.91	2.80	0.33	7.43	2.48	6.65	2.76	0.31	7.89	2.62	7.03	2.72	0.33

6. Children with E/FSL status

	2 years FDK group					1 year FDK group					No FDK group				
	Not E/FSL*		E/FSL		Effect Size	Not E/FSL*		E/FSL		Effect Size	Not E/FSL*		E/FSL		Effect Size
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Physical health & Well-being	8.35	1.52	8.88	1.22	-0.35	8.27	1.48	8.41	1.49	-0.09	8.72	1.42	8.82	1.44	-0.07
Social Competence	7.90	2.03	8.18	1.76	-0.14	7.88	2.00	7.73	2.07	0.07	8.46	1.74	8.27	1.93	0.11
Emotional Maturity	7.49	1.63	7.65	1.53	-0.10	7.61	1.65	7.35	1.66	0.16	7.83	1.63	7.45	1.61	0.23
Language & Cognitive development	7.40	2.15	7.49	1.87	-0.04	7.87	1.90	6.92	2.12	0.50	7.80	1.87	6.79	2.34	0.54
Communication & General knowledge	7.54	2.61	6.44	2.65	0.42	7.40	2.50	5.40	2.74	0.80	7.87	2.43	6.54	3.03	0.55

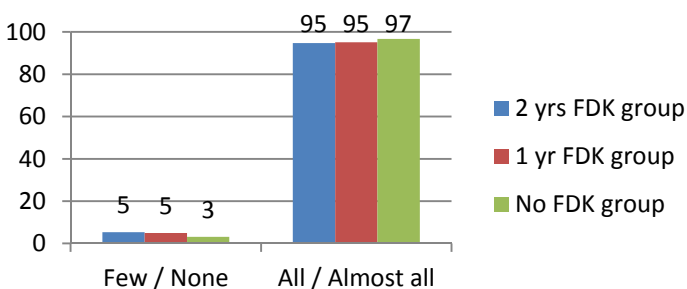


Subdomain Profiles (Year 2 JK)

Each of the five domains is divided into sub-domains, except for Communication Skills and General Knowledge. Based on skills and abilities that each sub-domain represents, children are classified as being at/above developmental expectations (reach the expectations for all or most of the sub-domain items), in the middle (reach the expectations for some of the sub-domain items), and below developmental expectations (reach expectations for none or few of the sub-domain items). Note that the Physical readiness for school day and the Physical independence subdomains do not feature a middle category because of the definitive nature of the questions they are comprised of.

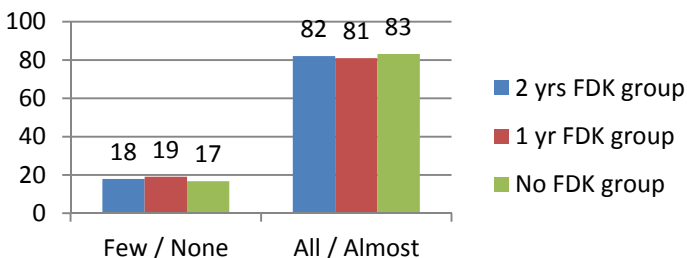
The graphs below provide a comparison between the three FDK groups for each of the subdomains. The graphs below are percentages of children in each subdomain category.

Physical Health & Well-being



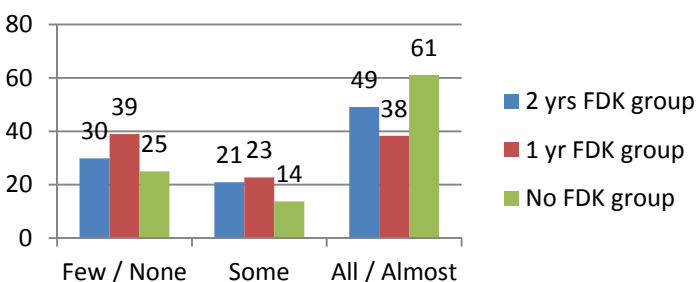
Physical readiness for school day

Children who reach **all or almost all** of the developmental expectations never or almost never experienced being dressed inappropriately for school activities, or coming to school tired, late or hungry



Physical independence

Children who reach **all or almost all** of the developmental expectations are independent in looking after their needs, have an established hand preference, are well coordinated, and do not suck a thumb/finger

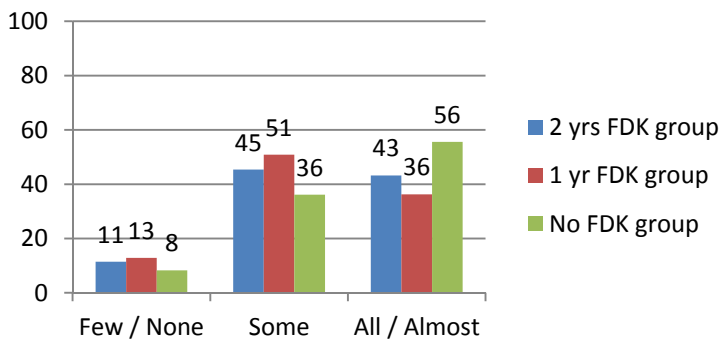


Gross and fine motor skills

Children who reach **all or almost all** of the developmental expectations have an excellent ability to physically tackle the school day and have excellent or good gross and fine motor skills.

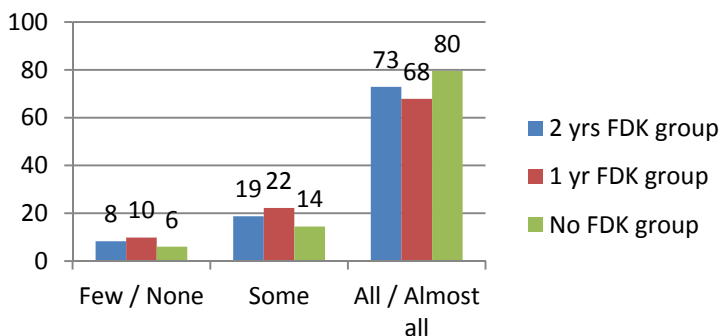


Social Competence



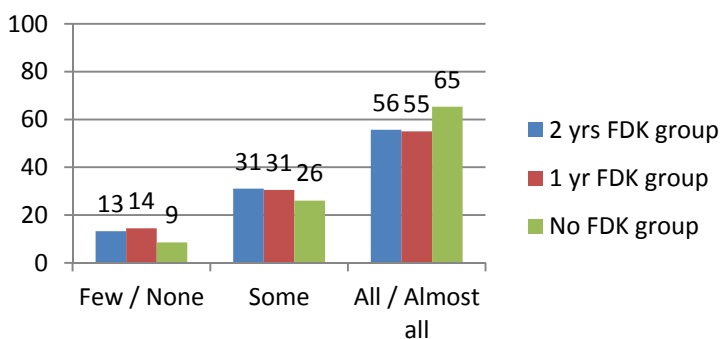
Overall social competence

Children who reach **all or almost all** of the developmental expectations have excellent or good overall social development, very good ability to get along with other children and play with various children; usually cooperative and self-confident.



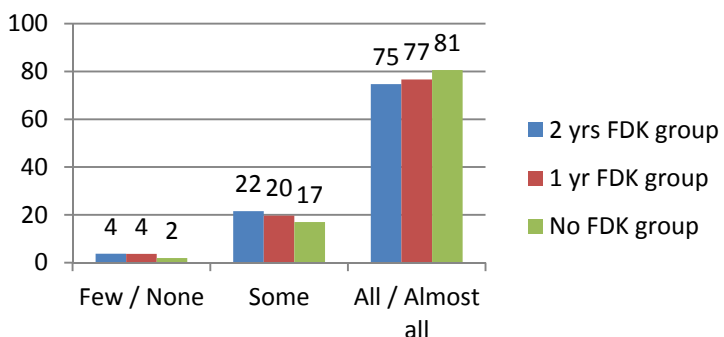
Responsibility and respect

Children who reach **all or almost all** of the developmental expectations always or most of the time show respect for others and for property, follow rules and take care of materials, accept responsibility for actions, and show self-control.



Approaches to learning

Children who reach **all or almost all** of the developmental expectations always or most of the time work neatly, work independently, solve problems, follow instructions and class routines, and easily adjust to changes.

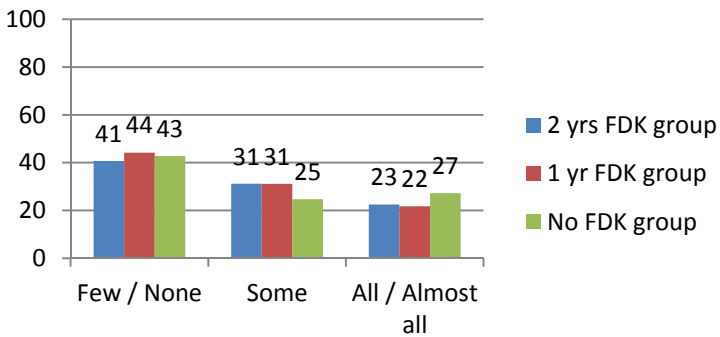


Readiness to explore new things

Children who reach **all or almost all** of the developmental expectations are curious about the surrounding world and are eager to explore new books, toys, and games.

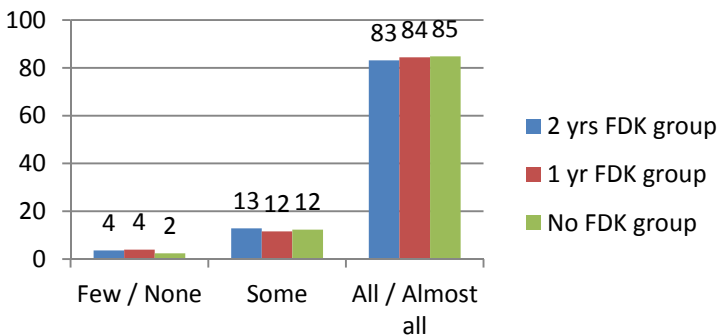


Emotional Maturity



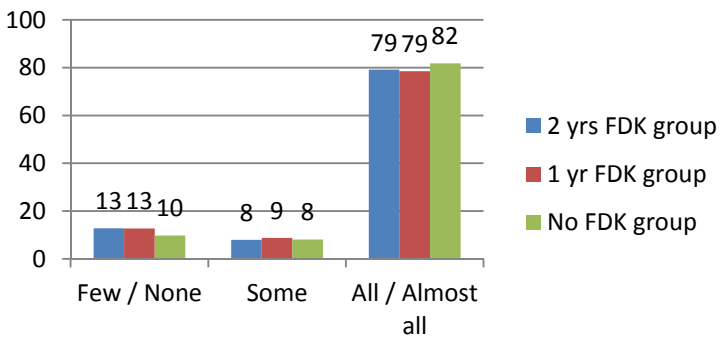
Prosocial and helping behaviour

Children who reach **all or almost all** of the developmental expectations show most of the helping behaviours: helping someone hurt, sick or upset, offering to help spontaneously, invite bystanders to join in



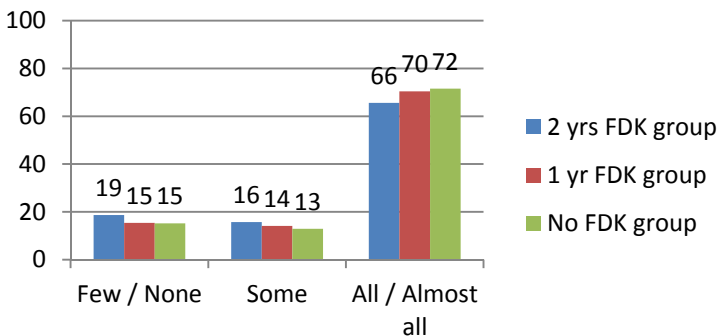
Anxious and fearful behaviour

Children who reach **all or almost all** of the developmental expectations rarely or never show most of the anxious behaviours; they are happy and able to enjoy school, and are comfortable being left at school by caregivers



Aggressive behaviour

Children who reach **all or almost all** of the developmental expectations rarely or never show most of the anxious behaviours; they are happy and able to enjoy school, and are comfortable being left at school by caregivers

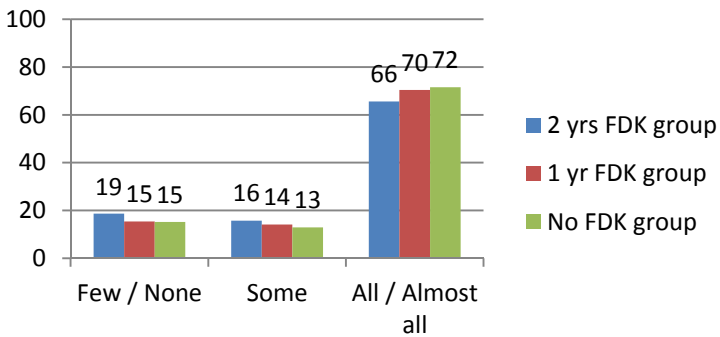


Hyperactivity and inattention

Children who reach **all or almost all** of the developmental expectations never show most of the hyperactive behaviours; they are able to concentrate, settle to chosen activities, wait their turn, and most of the time think before doing something

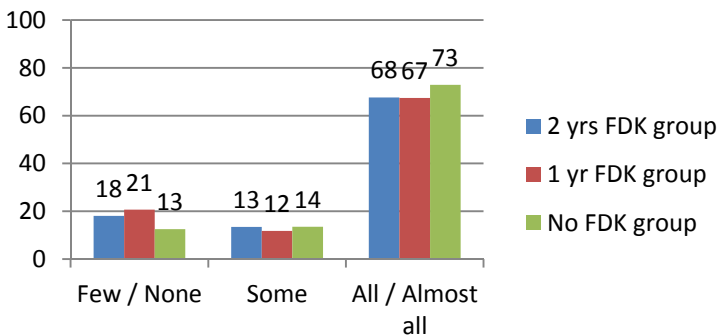


Language and Cognitive Development



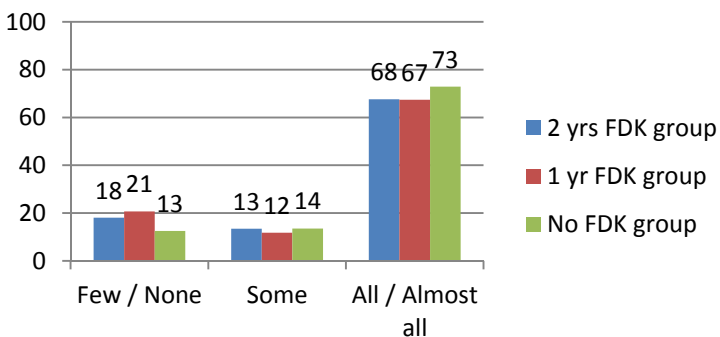
Basic literacy

Children who reach **all or almost all** of the developmental expectations have all the basic literacy skills: know how to handle a book, can identify some letters and attach sounds to some letters, show awareness of rhyming words, know the writing directions, and are able to write their own name



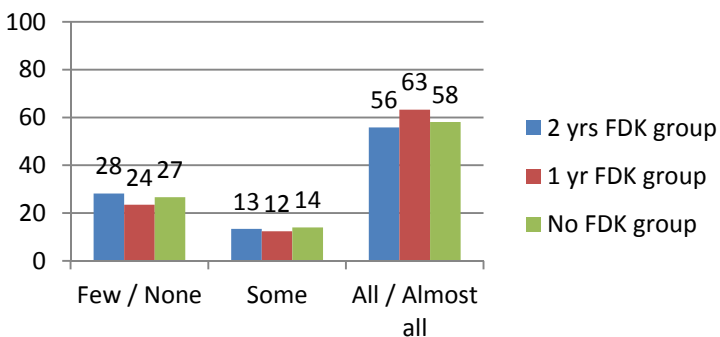
Interest in literacy / numeracy and memory

Children who reach **all or almost all** of the developmental expectations show interest in books and reading, math and numbers, and have no difficulty with remembering things name



Advanced literacy

Children who reach **all or almost all** of the developmental expectations have at least half of the advanced literacy skills: reading simple, complex words or sentences, writing voluntarily, writing simple words or sentences

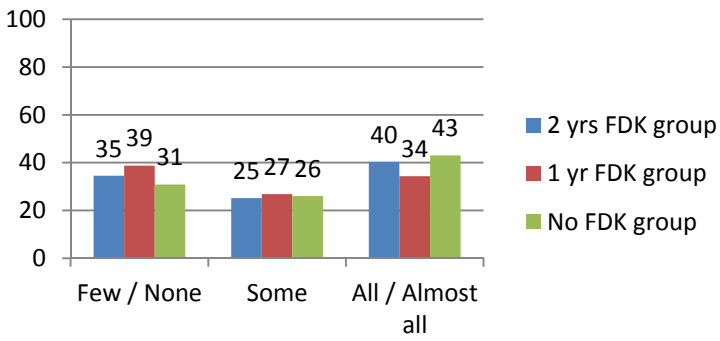


Basic numeracy

Children who reach **all or almost all** of the developmental expectations have all the basic numeracy skills: can count to 20 and recognize shapes and numbers, compare numbers, sort and classify, use one-to-one correspondence, and understand simple time concepts



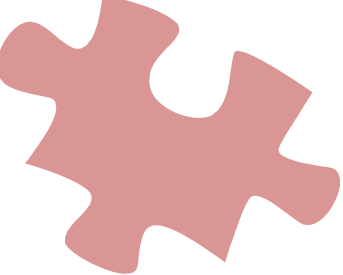
Communications Skills and General Knowledge



Communication skills and General knowledge

Children who reach **all or almost all** of the developmental expectations have excellent or very good communication skills; can communicate easily and effectively, can participate in story-telling or imaginative play, articulates clearly, show adequate general knowledge, and are proficient in their native language





Descriptive Statistics (Year 2 JK)

Comparisons of KPS Groups

The children participating in the FDK ELP project received a Kindergarten Parent Survey (KPS) for their parent/guardian to complete. Out of the 2,124 Junior Kindergarten children that were valid for ELP analyses, 992 had a KPS completed by their parent/guardian. The table below compares demographic variables for JK children with KPS and those without KPS.

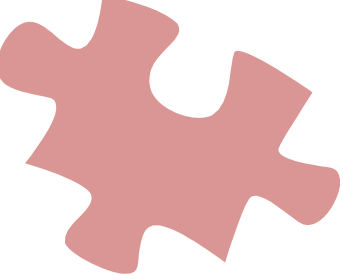
Gender	Count (%)				p-value
	KPS		No KPS		
Girl	505	50.9%	563	49.7%	0.602
Boy	487	49.1%	569	50.3%	

	KPS	No KPS	p-value
N	992	1131	0.822
Mean Age	4.78	4.78	

English / French as a second language	Count (%)			
	KPS		No KPS	
No E/FSL	780	78.6%	842	74.4%
E/FSL	211	21.3%	290	25.6%
Missing	1	0.1%	0	0%

French Immersion	Count (%)			
	KPS		No KPS	
Not French Immersion	930	93.8%	1074	94.9%
French Immersion	62	6.2%	58	5.1%
Missing	0	0%	0	0%

Aboriginal status	Count (%)			
	KPS		No KPS	
Not Aboriginal	902	90.9%	1019	90.0%
Aboriginal	6	0.6%	23	2.0%
Missing	84	8.5%	90	8.0%



The table below illustrates the average domain scores for those children with a completed KPS and those without. Children in the KPS group have significantly higher mean domain scores on all five EDI domains than children in the No KPS group.

Domain	KPS			No KPS			p-value
	N	Mean	SD	N	Mean	SD	
Physical Health & Well-being	991	8.63	1.34	1132	8.40	1.58	< .001
Social Competence	992	8.27	1.78	1132	7.89	2.07	< .001
Emotional Maturity	988	7.76	1.53	1126	7.45	1.71	< .001
Language & Cognitive Development	971	7.89	1.82	1122	7.21	2.19	< .001
Communication Skills & General Knowledge	992	7.57	2.49	1132	7.03	2.80	< .001

The table below indicates the percentage of children that are in the lowest 10th percentile for each domain, based on the number of children valid for analyses. Children in the No KPS group have significantly higher vulnerability rates than children in the KPS group.

	KPS		No KPS		p-value
	N vuln.	% vuln.	N vuln.	% vuln.	
Physical Health & Well-being	170	17.2%	288	25.4%	< .001
Social Competence	97	9.8%	166	14.7%	0.001
Emotional Maturity	141	14.3%	224	19.9%	0.001
Language & Cognitive Development	139	14.3%	283	25.2%	< .001
Communication Skills & General Knowledge	131	13.2%	230	20.3%	< .001
Vulnerable on one or more EDI domains	345	34.8%	345	47.4%	< .001

Domain Scores by FDK Group and KPS Group

	2 years FDK group				1 year FDK group				No FDK group			
	No KPS		KPS		No KPS		KPS		No KPS		KPS	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Physical Health & Well-being	8.36	1.57	8.62	1.33	8.17	1.68	8.41	1.26	8.66	1.46	8.86	1.38
Social Competence	7.81	2.04	8.18	1.86	7.67	2.18	8.02	1.83	8.20	1.97	8.63	1.57
Emotional Maturity	7.42	1.66	7.66	1.53	7.39	1.76	7.72	1.53	7.53	1.72	7.91	1.51
Language & Cognitive Development	7.10	2.25	7.88	1.75	7.40	2.09	8.01	1.80	7.21	2.19	7.79	1.91
Communication Skills & General Knowledge	7.08	2.75	7.60	2.50	6.78	2.83	7.33	2.43	7.17	2.83	7.77	2.53

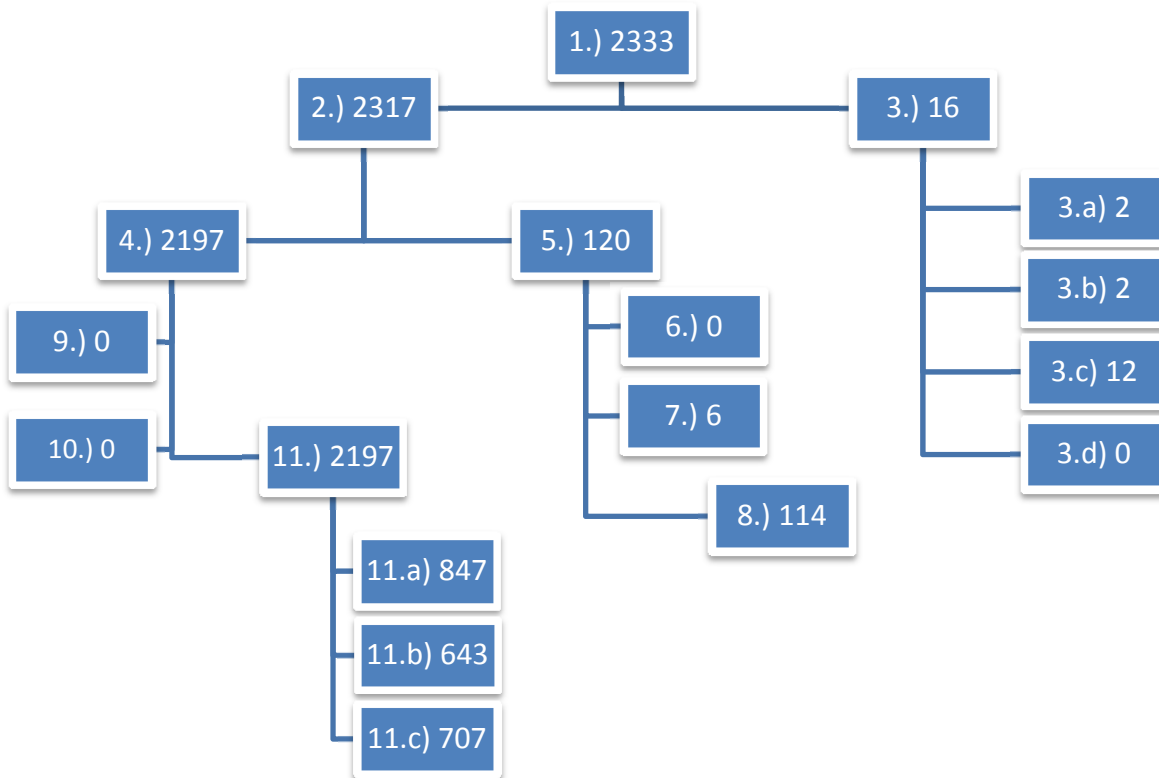
Vulnerability by FDK Group and KPS group

	2 years FDK group				1 year FDK group				No FDK group			
	KPS		No KPS		KPS		No KPS		KPS		No KPS	
	N vuln.	% vuln.	N vuln.	% vuln.	N vuln.	% vuln.	N vuln.	% vuln.	N vuln.	% vuln.	N vuln.	% vuln.
Physical Health & Well-being	66	18.9	129	26.8	65	19.9	89	29.5	39	12.3	65	19.9
Social Competence	41	11.7	61	12.7	35	10.7	61	20.2	21	6.6	44	12.6
Emotional Maturity	53	15.2	96	19.9	51	15.6	64	21.2	37	11.7	64	18.4
Language & Cognitive Development	49	14.0	131	27.2	40	12.2	71	23.5	50	15.8	81	23.3
Communication Skills & General Knowledge	47	13.5	98	20.3	45	13.8	62	20.5	39	12.3	70	20.1
Vulnerable on one or more EDI domains	125	35.8	237	49.2	115	35.2	153	50.7	105	33.2	147	42.2

Section II. Year 2

Part B. Senior Kindergarten

Number of Senior Kindergarten Children in ELP EDI Analyses



1. Total SK ELP (with consent) questionnaires completed.
2. Questionnaires for children in class more than 1 month.
3. Questionnaires for children in class other than in class more than 1 month
 - a. in class <1 month
 - b. moved out of class
 - c. moved out of school
 - d. other
4. Questionnaires without Special Needs.
5. Questionnaires labelled as Special Needs or missing Special Needs assignment.
6. Special Needs children with incomplete questionnaires (missing more than one domain).
7. Questionnaires missing Special Needs assignment.
8. Questionnaires valid for analyses in reports for children with Special Needs.
9. Non Special Needs children with incomplete questionnaires (missing more than one domain)
10. Children missing an FDK status group.
11. Questionnaires valid for analyses in reports for children without Special Needs.
 - a. 2 years FDK group
 - b. 1 year FDK group
 - c. No FDK group



Descriptive Statistics for Year 2 Senior Kindergarten by FDK Group

Overall, out of 2,333 EDI completed for children in Senior Kindergarten, 2,197 contained valid data for summary analyses (94.2%). 114 out of 2,333 (approximately 5%) of children were reported as having Special Needs. These rates were similar across the three study groups.

The tables below describe the composition of each of the three different FDK groups. These tables demonstrate that the groups are relatively similar in their demographic composition.

Gender	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
Girl	439 (51.8%)	313 (48.7%)	357 (50.5%)
Boy	408 (48.2%)	330 (51.3%)	350 (49.5%)

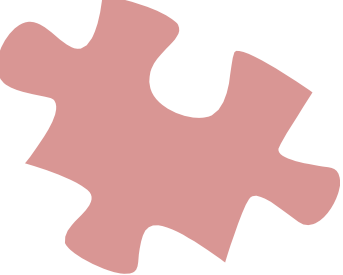
English/French as a Second Language	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
E/FSL	166 (19.6%)	90 (14.0%)	188 (26.6%)
No E/FSL	681 (80.4%)	553 (86.0%)	518 (73.3%)
Missing	0 (0%)	0 (0%)	1 (0.1%)

First Language	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
English	535 (63.2%)	478 (74.3%)	377 (53.3%)
French	74 (8.7%)	39 (6.1%)	82 (11.6%)
Other only	35 (4.1%)	49 (7.6%)	49 (6.9%)
English & French	119 (14.0%)	44 (6.8%)	141 (19.9%)
English & Other	29 (3.4%)	7 (1.1%)	13 (1.8%)
French & Other	18 (2.1%)	3 (0.5%)	12 (1.7%)
Two other languages	1 (0.1%)	1 (0.2%)	2 (0.3%)
Missing	36 (4.3%)	22 (3.4%)	31 (4.4%)

French Immersion	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
French Immersion	51 (6.0%)	89 (13.8%)	186 (26.3%)
Non-French Immersion	796 (94.0%)	554 (86.2%)	520 (73.6%)
Missing	0 (0%)	0 (0%)	1 (0.1%)

Aboriginal	Count (%)		
	2 years FDK group	1 year FDK group	No FDK group
Aboriginal	20 (2.4%)	11 (1.7%)	8 (1.1%)
Not Aboriginal	765 (90.3%)	559 (86.9%)	646 (91.4%)
Missing	62 (7.3%)	73 (11.4%)	53 (7.5%)





ELP Year 2 Senior Kindergarten Results 2011/2012

Overall Comparisons by FDK Group

The EDI was completed for 2,197 non-Special Needs Senior Kindergarten students in Year 2 of the ELP FDK project. The tables and graph below illustrate descriptive statistics by FDK group.

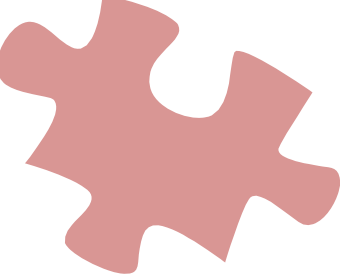
	2 years FDK group	1 year FDK group	No FDK group	<i>p</i> -value
Girls	439	313	357	0.484
Boys	408	330	350	

	2 years FDK group	1 year FDK group	No FDK group	<i>p</i> -value
N	847	643	707	0.461
Mean Age	5.72	5.74	5.74	
SD	0.32	0.29	0.31	

The *p*-values in the above tables demonstrate that the three groups do not statistically differ in terms of the composition of gender or age.

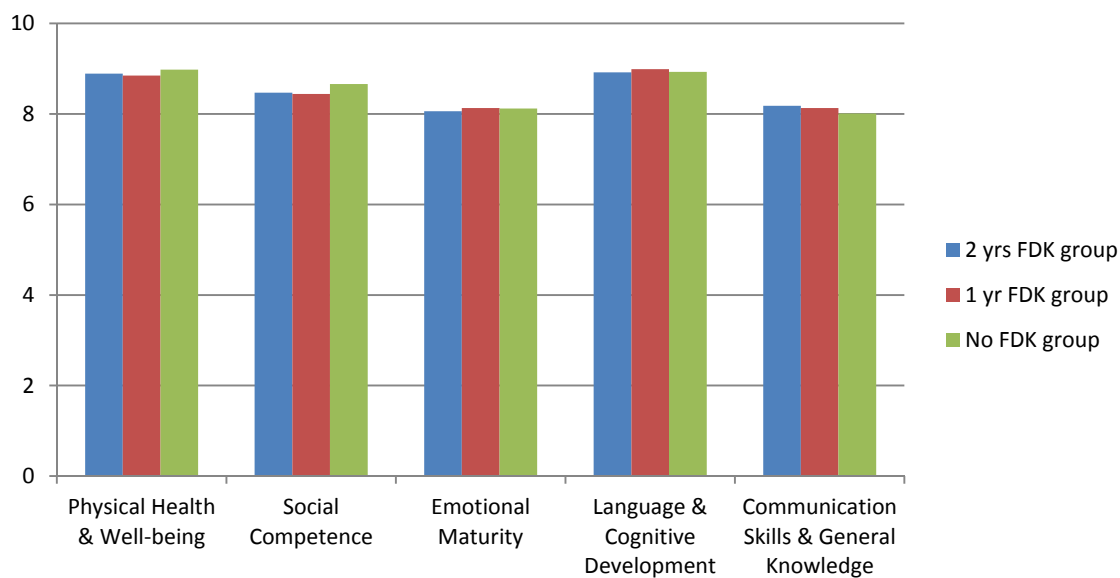
The table below outlines the mean scores and standard deviations for each domain by FDK group. The *p*-values in this table indicate that there are significant group differences in the Social Competence domain. *Post hoc* analyses demonstrated that the 1 year FDK group had significantly lower domain scores than the No FDK group (*p* = .049).

Note: As of the late summer 2012, neighbourhood-level index of socioeconomic status (Social Risk Index, or SRI), became available. The domain score comparisons by FDK group were repeated with SRI as a covariate, and the results are in Appendix H.



Domains	Mean (SD)			p-value
	2 years FDK group	1 year FDK group	No FDK group	
Physical Health & Well-being	8.89	8.85	8.98	0.162
Social Competence	8.47	8.44	8.66	0.034
Emotional Maturity	8.06	8.13	8.12	0.613
Language & Cognitive Development	8.92	8.99	8.93	0.602
Communication Skills & General Knowledge	8.18	8.13	8.01	0.381

Comparison of Means



Percentage of Vulnerable Children (Year 2 SK)

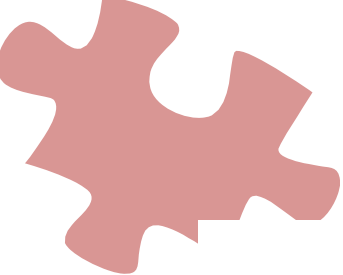
“Vulnerable” describes children whose domain scores are in the lowest 10th percentile of a distribution. The table and graph below illustrate the percentage of children in each FDK group who score is in the lowest 10th percentile based on the distribution of the Ontario Baseline.

The *p*-values in the below table illustrate that there are no significant differences in vulnerability between the three groups in any of the five domains.

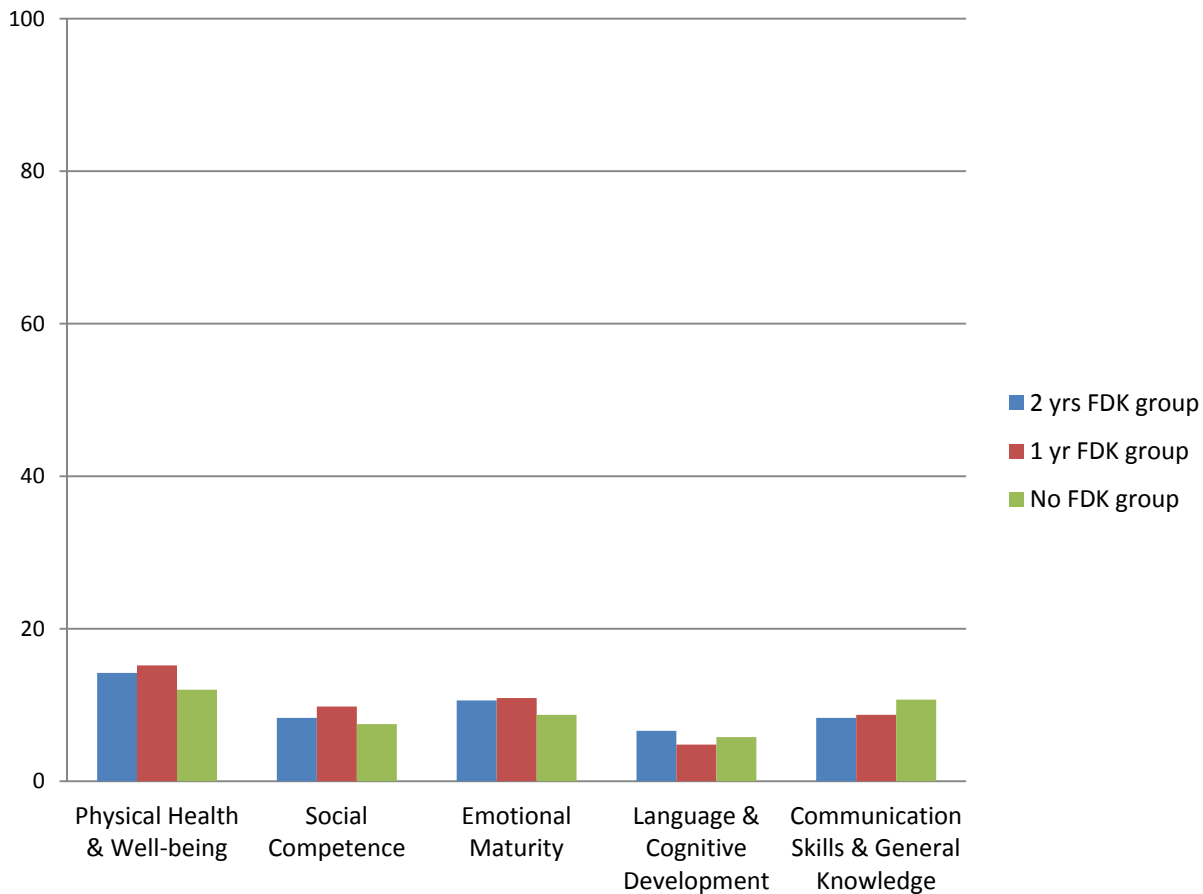
Note: As of the late summer 2012, neighbourhood-level index of socioeconomic status (Social Risk Index, or SRI), became available. The vulnerability comparisons by FDK group were repeated with SRI as a covariate, and the results are in Appendix I.

EDI Domains	% Vulnerable (ON Baseline cut-offs)			<i>p</i> -value
	2 years FDK group	1 year FDK group	No FDK group	
Physical Health & Well-being	14.2%	15.2%	12.0%	0.211
Social Competence	8.3%	9.8%	7.5%	0.305
Emotional Maturity	10.6%	10.9%	8.7%	0.315
Language & Cognitive Development	6.6%	4.8%	5.8%	0.344
Communication Skills & General Knowledge	8.3%	8.7%	10.7%	0.212
Vulnerable on one or more EDI domains	25.7%	28.5%	23.5%	0.113





Vulnerability (%) by Domain



Group Comparisons (Year 2 SK) ELP Year 2 2011/2012

The tables below compare factors that influence EDI results. Comparisons are by demographic information (i.e. gender, age, etc.) and FDK group. Please note that higher mean scores indicate better levels of developmental health at school entry.

The effect size is an accepted indicator of the strength of the relationship between two variables and assesses whether the differences are meaningful or not. Since it is independent of the measurement or sample size, the effect size of a difference between two groups is the best indicator of how meaningful this difference is. In this report, the effect size is computed as follows:

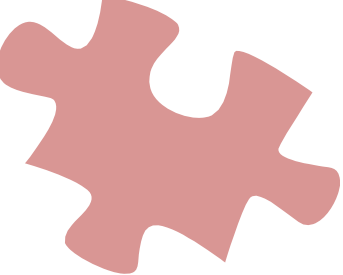
$$\frac{\text{mean}(\text{comparison group}) - \text{mean}(\text{reference group})}{\text{SD}(\text{reference group})}$$

It is customary to interpret the effect sizes of 0 to 0.3 as small, 0.3 to 0.8 as moderate, and greater than 0.8 as large. Negative effect sizes mean the comparison group has a lower mean score than the reference group.

*Note that the reference group used in the calculations of effect size is indicated with an asterisk.

1. Gender

	2 years FDK group					1 year FDK group					No FDK group				
	Girls*		Boys		Effect Size	Girls*		Boys		Effect Size	Girls*		Boys		Effect Size
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Physical health & Well-being	9.04	1.23	8.73	1.35	0.25	8.91	1.18	8.78	1.29	0.11	9.11	1.18	8.84	1.38	0.23
Social Competence	8.90	1.44	8.01	1.89	0.62	8.82	1.59	8.07	1.88	0.47	8.98	1.49	8.32	1.70	0.44
Emotional Maturity	8.47	1.29	7.62	1.54	0.66	8.51	1.47	7.76	1.61	0.51	8.49	1.36	7.75	1.43	0.54
Language & Cognitive development	9.18	1.38	8.65	1.67	0.38	9.22	1.07	8.78	1.52	0.41	9.08	1.36	8.78	1.53	0.22
Communication & General knowledge	8.60	2.07	7.72	2.46	0.43	8.56	2.10	7.71	2.50	0.40	8.20	2.36	7.82	2.51	0.16



2. Age of Child (mean age is 5.74 years)

	2 years FDK group					1 year FDK group					No FDK group				
	Above mean age*		Below mean age		Effect Size	Above mean age*		Below mean age		Effect Size	Above mean age*		Below mean age		Effect Size
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Physical health & Well-being	9.04	1.21	8.75	1.35	0.24	9.04	1.14	8.64	1.31	0.35	9.12	1.23	8.82	1.34	0.24
Social Competence	8.64	1.76	8.30	1.68	0.19	8.73	1.60	8.13	1.92	0.38	8.75	1.57	8.55	1.69	0.13
Emotional Maturity	8.26	1.41	7.87	1.52	0.28	8.31	1.48	7.94	1.67	0.25	8.15	1.45	8.08	1.43	0.05
Language & Cognitive development	9.16	1.32	8.70	1.71	0.35	9.20	1.16	8.78	1.47	0.36	9.13	1.34	8.71	1.54	0.31
Communication & General knowledge	8.54	2.14	7.83	2.40	0.33	8.53	2.13	7.71	2.51	0.38	8.35	2.28	7.65	2.55	0.31

3. Children with E/FSL status

	2 years FDK group					1 year FDK group					No FDK group				
	Not E/FSL*		E/FSL		Effect Size	Not E/FSL*		E/FSL		Effect Size	Not E/FSL*		E/FSL		Effect Size
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Physical health & Well-being	8.85	1.33	9.07	1.15	-0.17	8.87	1.24	8.72	1.24	0.12	8.99	1.27	8.95	1.34	0.03
Social Competence	8.46	1.72	8.52	1.74	-0.03	8.43	1.78	8.49	1.84	-0.03	8.84	1.47	8.18	1.89	0.45
Emotional Maturity	8.04	1.51	8.14	1.32	-0.07	8.08	1.59	8.40	1.51	-0.20	8.26	1.43	7.74	1.40	0.36
Language & Cognitive development	8.96	1.56	8.77	1.50	0.12	9.04	1.31	8.70	1.51	0.26	9.11	1.31	8.47	1.69	0.49
Communication & General knowledge	8.32	2.25	7.58	2.44	0.33	8.32	2.24	6.94	2.70	0.62	8.43	2.12	6.90	2.84	0.72

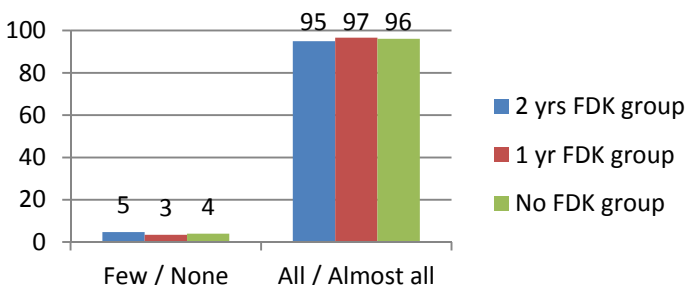


Subdomain Profiles (Year 2 SK)

Each of the five domains is divided into sub-domains, except for Communication Skills and General Knowledge. Based on skills and abilities that each sub-domain represents, children are classified as being at/above developmental expectations (reach the expectations for all or most of the sub-domain items), in the middle (reach the expectations for some of the sub-domain items), and below developmental expectations (reach expectations for none or few of the sub-domain items). Note that the Physical readiness for school day and the Physical independence subdomains do not feature a middle category because of the definitive nature of the questions they are comprised of.

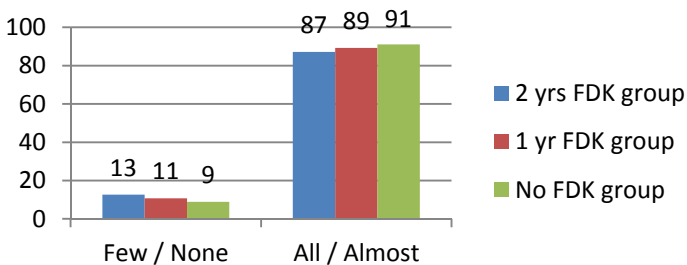
The graphs below provide a comparison between the three FDK groups for each of the subdomains. The graphs below are percentages of children in each subdomain category.

Physical Health & Well-being



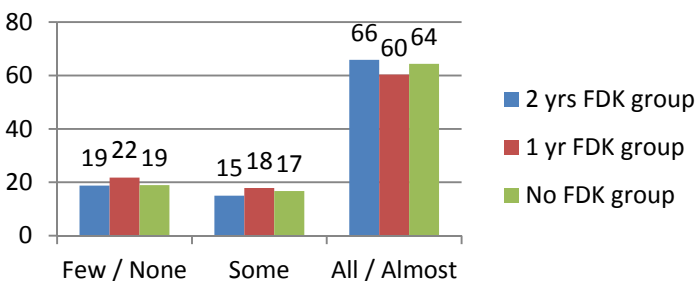
Physical readiness for school day

Children who reach **all or almost all** of the developmental expectations never or almost never experienced being dressed inappropriately for school activities, or coming to school tired, late or hungry



Physical independence

Children who reach **all or almost all** of the developmental expectations are independent in looking after their needs, have an established hand preference, are well coordinated, and do not suck a thumb/finger

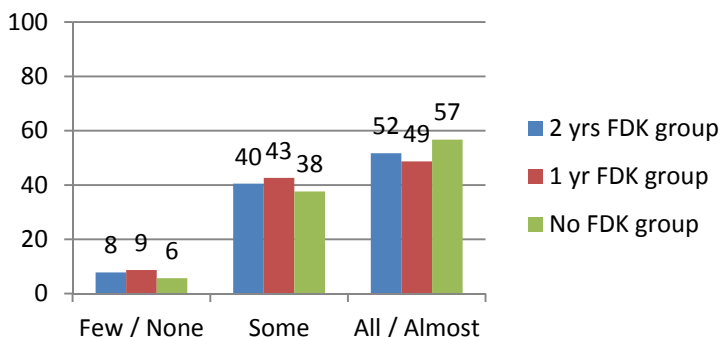


Gross and fine motor skills

Children who reach **all or almost all** of the developmental expectations have an excellent ability to physically tackle the school day and have excellent or good gross and fine motor skills.

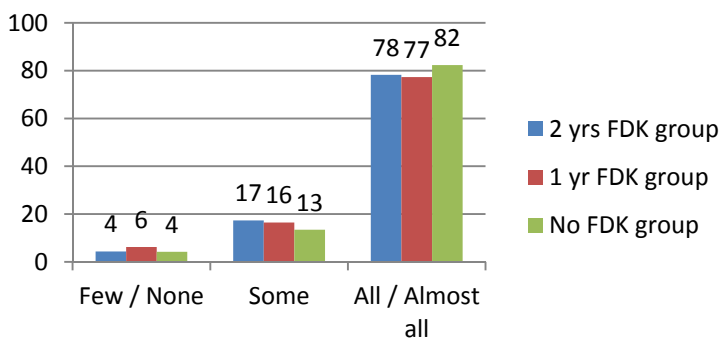


Social Competence



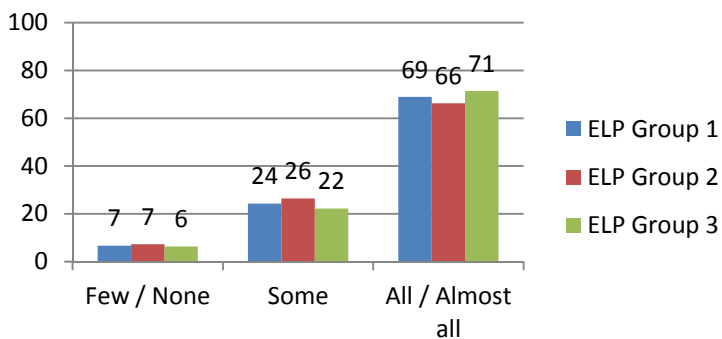
Overall social competence

Children who reach **all or almost all** of the developmental expectations have excellent or good overall social development, very good ability to get along with other children and play with various children; usually cooperative and self-confident.



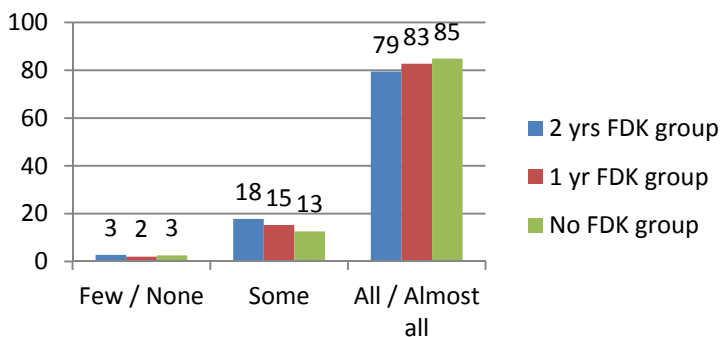
Responsibility and respect

Children who reach **all or almost all** of the developmental expectations always or most of the time show respect for others and for property, follow rules and take care of materials, accept responsibility for actions, and show self-control.



Approaches to learning

Children who reach **all or almost all** of the developmental expectations always or most of the time work neatly, work independently, solve problems, follow instructions and class routines, and easily adjust to changes.

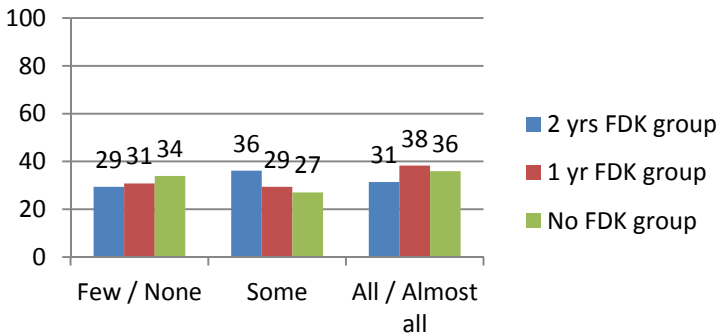


Readiness to explore new things

Children who reach **all or almost all** of the developmental expectations are curious about the surrounding world and are eager to explore new books, toys, and games.

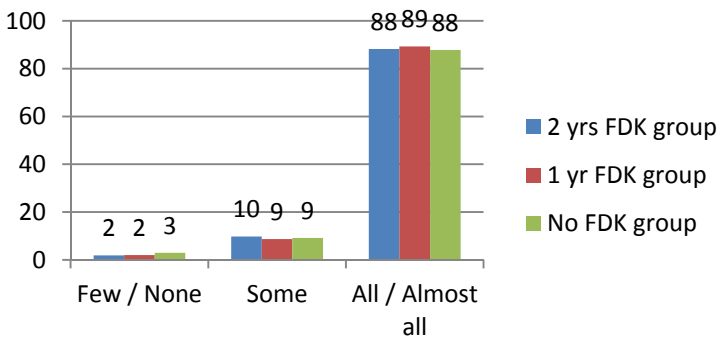


Emotional Maturity



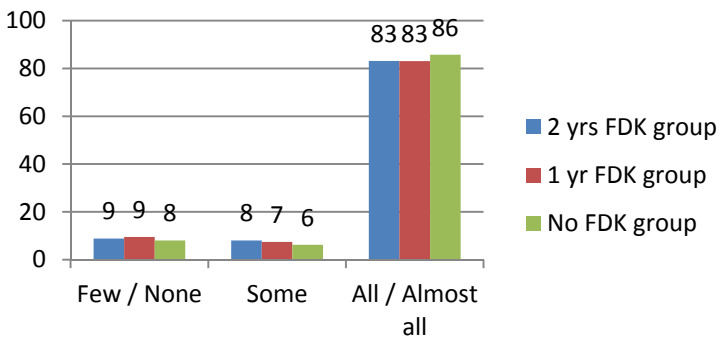
Prosocial and helping behaviour

Children who reach **all or almost all** of the developmental expectations show most of the helping behaviours: helping someone hurt, sick or upset, offering to help spontaneously, invite bystanders to join in



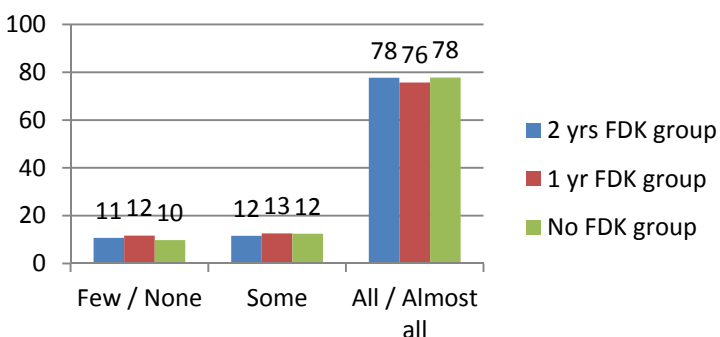
Anxious and fearful behaviour

Children who reach **all or almost all** of the developmental expectations rarely or never show most of the anxious behaviours; they are happy and able to enjoy school, and are comfortable being left at school by caregivers



Aggressive behaviour

Children who reach **all or almost all** of the developmental expectations rarely or never show most of the anxious behaviours; they are happy and able to enjoy school, and are comfortable being left at school by caregivers

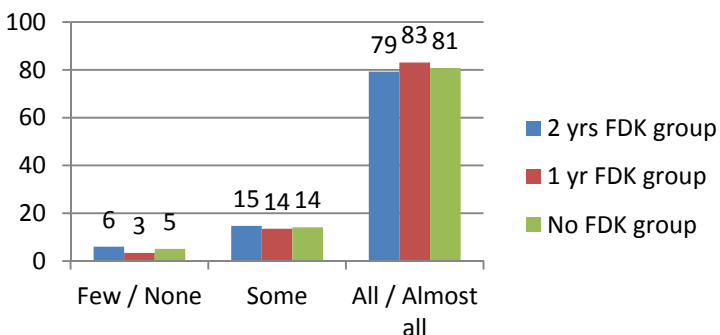


Hyperactivity and inattention

Children who reach **all or almost all** of the developmental expectations never show most of the hyperactive behaviours; they are able to concentrate, settle to chosen activities, wait their turn, and most of the time think before doing something

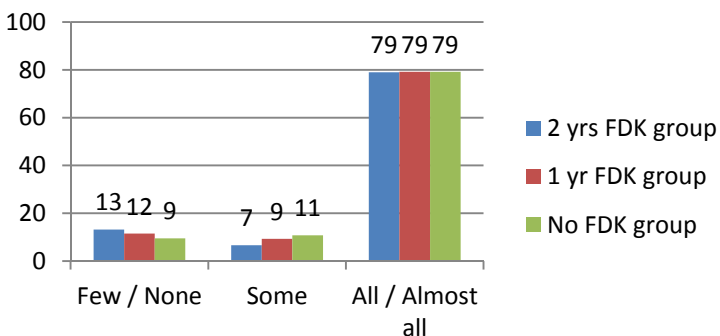


Language and Cognitive Development



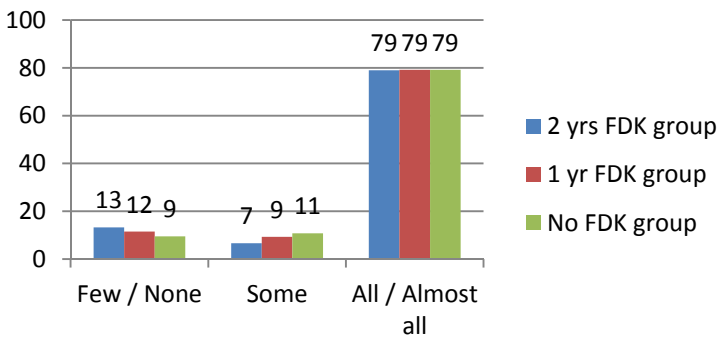
Basic literacy

Children who reach **all or almost all** of the developmental expectations have all the basic literacy skills: know how to handle a book, can identify some letters and attach sounds to some letters, show awareness of rhyming words, know the writing directions, and are able to write their own name



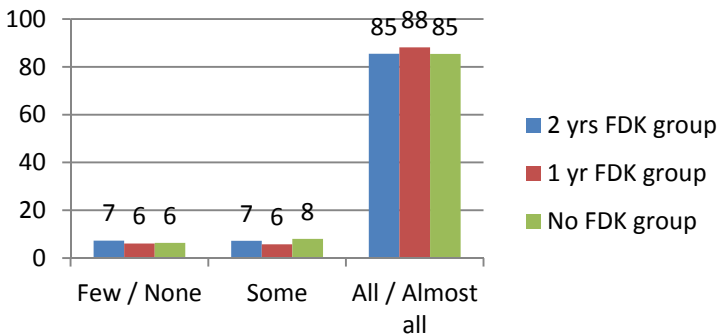
Interest in literacy / numeracy and memory

Children who reach **all or almost all** of the developmental expectations show interest in books and reading, math and numbers, and have no difficulty with remembering things name



Advanced literacy

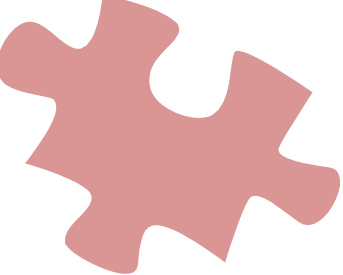
Children who reach **all or almost all** of the developmental expectations have at least half of the advanced literacy skills: reading simple, complex words or sentences, writing voluntarily, writing simple words or sentences



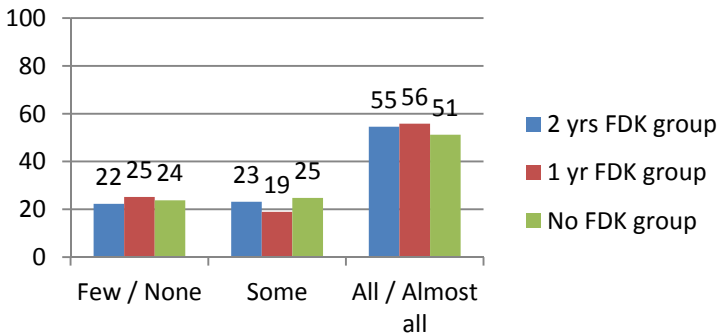
Basic numeracy

Children who reach **all or almost all** of the developmental expectations have all the basic numeracy skills: can count to 20 and recognize shapes and numbers, compare numbers, sort and classify, use one-to-one correspondence, and understand simple time concepts





Communications Skills and General Knowledge



Communication skills and General knowledge

Children who reach **all or almost all** of the developmental expectations have excellent or very good communication skills; can communicate easily and effectively, can participate in story-telling or imaginative play, articulates clearly, show adequate general knowledge, and are proficient in their native language

Descriptive Statistics (Year 2 SK) Comparisons of KPS Groups

The children participating in the FDK ELP project received a Kindergarten Parent Survey (KPS) for their parent/guardian to complete. Out of the 2,197 Senior Kindergarten children that were valid for ELP analyses, 1,104 had a KPS completed by their parent/guardian. The table below compares demographic variables for SK children with KPS and those without KPS.

Gender	Count (%)				p-value
	KPS		No KPS		
Girl	549	49.7%	560	51.2%	0.495
Boy	555	50.3%	533	48.8%	

	KPS	No KPS	p-value
N	1104	1093	0.044
Mean Age	5.72	5.75	

English / French as a second language	Count (%)			
	KPS		No KPS	
No E/FSL	904	81.9%	848	77.6%
E/FSL	200	18.1%	244	22.3%
Missing	0	0%	1	0.1%

French Immersion	Count (%)			
	KPS		No KPS	
Not French Immersion	869	78.7%	1001	91.6%
French Immersion	235	21.3%	91	8.3%
Missing	0	0%	1	0.1%

Aboriginal status	Count (%)			
	KPS		No KPS	
Not Aboriginal	1007	91.2%	963	88.1%
Aboriginal	11	1.0%	28	2.6%
Missing	86	7.8%	102	9.3%



The table below illustrates the average domain scores for those children with a completed KPS and those without. Children in the KPS group have significantly higher mean domain scores on all five EDI domains than children in the KPS group.

Domain	KPS			No KPS			p-value
	N	Mean	SD	N	Mean	SD	
Physical Health & Well-being	1103	9.05	1.12	1092	8.75	1.40	< .001
Social Competence	1104	8.75	1.55	1093	8.28	1.84	< .001
Emotional Maturity	1104	8.26	1.40	1084	7.93	1.57	< .001
Language & Cognitive Development	1104	9.09	1.29	1093	8.80	1.60	< .001
Communication Skills & General Knowledge	1104	8.34	2.17	1093	7.87	2.52	< .001

The table below indicates the percentage of children that are in the lowest 10th percentile for each domain, based on the number of children valid for analyses. Children in the No KPS group have significantly higher vulnerability rates than children in the KPS group in every domain.

Domains	KPS		No KPS		p-value
	N vuln.	% vuln.	N vuln.	% vuln.	
Physical Health & Well-being	104	9.4%	199	18.2%	< .001
Social Competence	63	5.7%	123	11.3%	< .001
Emotional Maturity	89	8.1%	131	12.1%	0.002
Language & Cognitive Development	50	4.5%	78	7.1%	0.011
Communication Skills & General Knowledge	74	6.7%	128	11.7%	< .001
Vulnerable on one or more EDI domains	225	20.4%	342	31.3%	< .001

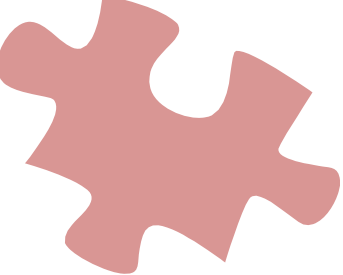


Domain Scores by FDK Group and KPS Group

	2 years FDK group				1 year FDK group				No FDK group			
	KPS		No KPS		KPS		No KPS		KPS		No KPS	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Physical Health & Well-being	9.04	1.19	8.75	1.38	8.98	1.09	8.71	1.36	9.14	1.06	8.80	1.47
Social Competence	8.65	1.60	8.29	1.83	8.73	1.61	8.15	1.91	8.90	1.42	8.41	1.79
Emotional Maturity	8.17	1.42	7.94	1.53	8.35	1.40	7.90	1.73	8.29	1.38	7.94	1.48
Language & Cognitive Development	9.05	1.45	8.80	1.64	9.07	1.21	8.92	1.46	9.15	1.16	8.71	1.68
Communication Skills & General Knowledge	8.34	2.16	8.01	2.43	8.35	2.22	7.90	2.47	8.33	2.15	7.68	2.67

Vulnerability by FDK Group and KPS group

	2 years FDK group				1 year FDK group				No FDK group			
	KPS		No KPS		KPS		No KPS		KPS		No KPS	
	N	%	N	%	N	%	N	%	N	%	N	%
Physical Health & Well-being	48	11.3	72	17.0	30	9.3	68	21.2	26	7.3	59	16.9
Social Competence	28	6.6	42	9.9	19	5.9	44	13.8	16	4.5	37	10.6
Emotional Maturity	37	8.7	52	12.3	25	7.7	45	14.1	27	7.5	34	9.7
Language & Cognitive Development	23	5.4	33	7.8	14	4.3	17	5.3	13	3.6	28	8.0
Communication Skills & General Knowledge	25	5.9	45	10.6	23	7.1	33	10.3	26	7.3	50	14.3
Vulnerable on one or more EDI domains	91	21.5	127	30.0	72	22.3	111	34.7	62	17.3	104	29.8



Section III
Analyses of EDI and KPS data
Year 1 & 2 (2010/2011,2011/2012)



Part III: Year 1 and Year 2

In this section of the report we focus on consistencies and differences between the two years of the study in relation to group and grade. Where appropriate, analyses are controlling for the neighbourhood-level indicators of socioeconomic status measured with the Social Risk Index (SRI).

Analyses

Analyses for this section included both cross sectional analyses by cohort year, and school-based longitudinal matched analyses.

Cross sectional analyses. Cross sectional analyses enable the comparison of groups for which observations took place at one specific point in time. Cross sectional analyses compared the JK cohort from Year 1 to the JK cohort from Year 2, as well as the SK children in both years. This was done to determine if differences could be attributed to the ELP FDK program, or were a result of differences within the children themselves.

In the first step of the cross sectional analyses, data were aggregated by school and study year. Data were aggregated by school so that schools could be used as the unit of analyses in the evaluation of differences in JK and SK cohorts across the three FDK groups. There were 2,242 Year 1 JK children and 2,100 Year 2 JK children, as well as 1,465 Year 1 SK children and 2,162 Year 2 SK children included in the aggregated data set. Gender, age, and Social Risk Index (SRI), a census derived neighbourhood-based measure of socioeconomic status, were compared first for both JKs and SKs separately, using repeated measures ANOVAs, to determine any demographic differences between the years. Differences in demographic composition of the schools could affect the domain scores as, for example, girls tend to have higher scores than boys. If there was a significant difference in the demographic composition between the years, this could affect domain scores. Repeated measures ANOVAs were then performed by Kindergarten year (JK, SK) and by FDK group, using the domain scores and vulnerability as the outcomes. These analyses were performed controlling for age, gender, and SRI. Controlling for demographic variables allows for a more non-biased comparison of groups.

Multilevel modelling (MLM) was used as a complementary approach in the cross sectional analyses, to examine the differences between groups in comparison to the group which did not have full day kindergarten in either of the two study years (No FDK). MLM is a technique that takes into account the clustering of children within schools and allows us to estimate the amount of variance in the dependent variables that can be attributed to the two levels (Rasbash et al., 2012). This technique utilizes the correlated structure of the data to examine differences across the FDK groups between Year 1 and Year 2 JKs and between Year 1 and Year 2 SKs controlling for differences in age, differences in sex composition (reference group *females*) and differences in E/FSL composition (reference group *non E/FSL*) between the cohorts within schools over the two years. The reference for the analyses by study group was



the No FDK group. Socioeconomic status was not included in these analyses since the individual level socioeconomic status information was not available for most of children (due to low uptake of the Kindergarten Parent Survey (KPS)). Limiting the sample to those with both EDI and KPS data only would have impeded the statistical power of the analyses.

As children who are more at risk and those who have had the longest exposure to the program should benefit most, a separate set of analyses was performed for Year 2 Senior Kindergarten children exclusively for groups which have been identified in past research as more at risk for poor outcomes: boys, younger children, and children in the EFSL group. The differences among the three study groups were investigated using ANOVA controlling for SRI.

School-based longitudinal analyses. The second stage of analyses was the school-based longitudinal component. Longitudinal analysis is a type of analysis that includes the same units of study observed at two or more time points (such as Junior and Senior kindergarten level). For these analyses, schools were matched between Year 1 and Year 2. No matching of individual children was possible. The matching procedure started by selecting JK children from Year 1 and SK children from Year 2. The data from these children were then aggregated by school and year, and then matched based on schools. Any school that did not have JK children in Year 1 or SK children in Year 2 was dropped during the aggregation process. There were nine schools excluded from the school-based longitudinal analyses because they did not have data from both years of implementation. By selecting only the JK children from Year 1 and the SK children from Year 2 and matching by school, it was assumed that the majority of children did not change schools from JK to SK, and therefore the Year 1 JKs were the same children as the Year 2 SKs.

Repeated measures ANOVA were performed to compare FDK Groups and years with domain scores and vulnerability rates as the outcomes. The analyses were all performed controlling for age, gender, and SRI. These analyses compared the JK Year 1 children to the SK Year 2 children by their FDK group. The purpose of these analyses was to determine if there were differences in outcomes by FDK group as well as by year.

Multilevel modelling was also performed as a complementary approach for the school-based longitudinal component, to examine the change in domain scores and vulnerability for each of the three FDK groups separately across the two years. These MLM analyses examined the changes in domain scores and vulnerability rates from JK to SK by FDK group controlling for possible effects of differences in age, differences in sex composition, and E/FSL composition on overall vulnerability and the domain scores. The reference group for the analyses were the Year 1 vulnerability and scores. Clearly, a major limitation in this approach is that individual students were not matched within schools over the two years of available data.



Results

Social Risk Index. The comparison of SRI among the groups and grades for each year of the study indicate that only children in Year 1 SK groups came from neighbourhoods with similar SES indicators. For the three remaining comparisons (Year 1 JK, Year 2 JK and Year 2 SK), there was a significant difference among the study groups, with the No FDK group having the highest mean SRI indicating the highest risk and thus lowest SES among the groups. Table 1 below displays average SRI by year of implementation, FDK group, and class assignment.

Table 1.

SRI by ELP year, FDK Group, and Class assignment

		ELP Year 1			ELP Year 2		
		2 years FDK group	1 year FDK group	No FDK group	2 years FDK group	1 year FDK group	No FDK group
Mean	JK	3.84	3.46	4.49	3.60	2.62	4.39
Mean	SK	3.62	3.61	3.69	3.49	2.93	4.17

Note: higher SRI means are indicative of higher risk (lower SES)

Cross sectional analyses. Table 2 depicts the average domain scores for Year 1 JK children and Year 2 JK children. Table 3 presents the percentage of JK children that were vulnerable on one or more domain, by year. Repeated measures ANOVA were performed for JK children by FDK Group for each of the five domains, as well as for those vulnerable on one or more domains. These analyses revealed no significant differences between the Year 1 JKs and the Year 2 JKs in the domain of physical health and well-being ($p = .732$), social competence ($p = .852$), emotional maturity ($p = .490$), language and cognitive development ($p = .439$), communication and general knowledge ($p = .357$), or vulnerability on one or more domain ($p = .816$). These analyses were performed controlling for age, gender, and SRI. These findings demonstrate that the children in JK Year 1 of the ELP project did not significantly differ from the Year 2 children in any of the five domains or vulnerability.

Table 2

Descriptive analyses of the five EDI domains for JK Year 1 and JK Year 2 (mean and standard deviation, SD).

Domain	2 years FDK group				1 year FDK group				No FDK group			
	Year 1		Year 2		Year 1		Year 2		Year 1		Year 2	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Physical health & well-being	8.29	1.10	8.35	0.88	8.30	0.85	8.25	0.86	8.43	0.91	8.38	0.94
Social competence	7.89	1.11	7.80	0.91	7.95	1.29	7.73	1.21	8.01	1.10	7.94	1.17
Emotional Maturity	7.58	0.95	7.47	0.69	7.69	0.87	7.48	0.94	7.77	0.77	7.45	1.01
Language & cognitive development	7.93	0.98	7.33	0.97	7.82	0.84	7.45	1.26	7.85	1.15	7.26	1.20
Communication & general knowledge	7.16	1.71	7.07	1.19	6.82	1.56	7.00	1.52	7.27	1.60	6.94	1.36

Table 3

Percentage of JK children vulnerable on 1 or more domains

	2 years FDK group		1 year FDK group		No FDK group	
	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2
Vulnerable on 1 or more domain	40.89%	44.56%	38.20%	43.23%	35.08%	41.88%

The cross-sectional analyses using MLM (Appendix M), showed no differences in vulnerability across the FDK groups over the two cohorts of JK children by FDK group with the exception of social competence and language and cognitive development domains. The difference in the change in scores in the social competence domain was significantly lower for JK children in schools with FDK compared to JK children in schools with no FDK (-0.395, s.e.= 0.156, $p < 0.05$). On the other hand, the difference in change in scores in the language and cognitive development domain was significantly higher for JK children in schools with FDK in Year 2 compared to children in schools with no FDK (0.521, s.e.=0.163, $p < 0.05$).

Table 4 depicts the average domain scores for Year 1 SK children and Year 2 SK children. Table 5 presents the percentage of SK children that were vulnerable on one or more domain, by year. Repeated measures ANOVA were performed for SK children by FDK Group for each of the five domains, as well as for vulnerability on one or more domains. Repeated measures ANOVA for SK children by FDK Group revealed no significant differences between the Year 1 SKs and the Year 2 SKs in the domain of physical health and well-being ($p = .068$), social competence ($p = .653$), emotional maturity ($p = .790$), language skills and cognitive development ($p = .784$), communication and general knowledge ($p = .603$), or vulnerability on one or more domain ($p = .764$). These analyses were performed controlling for age, gender, and SRI. These findings demonstrate that the children in SK Year 1 of the ELP project did not significantly differ from the Year 2 children in any of the five domains, or vulnerability.

Table 4

Descriptive analyses of the five EDI domains for SK Year 1 and SK Year 2 (mean and standard deviation, SD).

Domain	2 years FDK				1 year FDK				No FDK			
	Year 1		Year 2		Year 1		Year 2		Year 2		Year 1	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Physical health & well-being	8.69	0.83	8.80	0.74	8.41	0.89	8.68	0.68	8.59	0.98	8.73	0.85
Social competence	8.25	0.92	8.34	0.74	8.42	1.17	8.26	0.85	8.26	1.13	8.45	0.89
Emotional Maturity	7.93	0.75	8.00	0.69	8.13	0.97	7.98	0.87	8.04	0.96	8.01	0.67
Language & cognitive development	8.99	0.56	8.82	0.83	8.92	0.76	8.82	0.71	8.77	0.86	8.80	0.56
Communication & general knowledge	7.76	1.34	8.05	1.04	7.41	1.42	7.78	1.40	7.54	1.70	7.74	1.29

Table 5

Percentage of SK children vulnerable on 1 or more domains

	2 years FDK		1 year FDK		No FDK	
	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2
Vulnerable on 1 or more domain	25.98%	27.15%	28.08%	29.99%	28.02%	26.76%



Similar to the results obtained for the JK cross-sectional analyses, there were no differences in vulnerability and domain scores for the SK cohorts across the two years by FDK group with the exception of the physical health and well-being domain. The difference in change in scores in the physical health and well-being domain was significantly higher for children in schools with FDK in Year 2 compared to children in schools with no FDK (0.302, s.e.=0.126, $p<0.05$).

At-risk Year 2 SK group comparisons. The tables in Appendix J, Appendix K, and Appendix L show mean scores for the at-risk groups across the three FDK study groups. There were no statistically significant results for any of the EDI domains when boys were compared, and the No FDK group tended to have the highest scores. There were no statistically significant outcomes in comparison of the E/FSL groups, however, children from the 2 years FDK group had consistently highest scores among the three study groups, with the exception of Emotional maturity where the 1 year FDK group had the highest scores. Among the children younger than the mean age, children in the No FDK group had significantly highest scores in Physical, Social, and Emotional domains. They also had marginally highest scores in Language and Cognitive development, while children in the 2 years FDK group had highest scores in Communication Skills and General Knowledge domain, but these two results were not statistically significant.

School-based longitudinal analyses. Table 6 presents the average domain scores by group for the Year 1 JK children and the Year 2 SK children. It is expected that the SK children would have higher scores than the JK children, however the purpose of the analyses was to see if any of the individual groups grew more than the others. There was a significant group difference in the change in emotional maturity domain scores ($p = .022$) with the 2 years FDK group having the greatest increase in mean domain scores from Year 1 to Year 2 (see Figure 1).

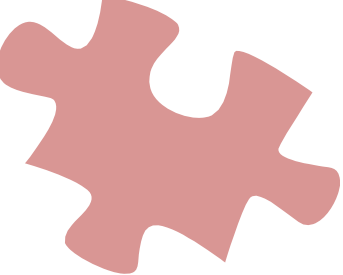
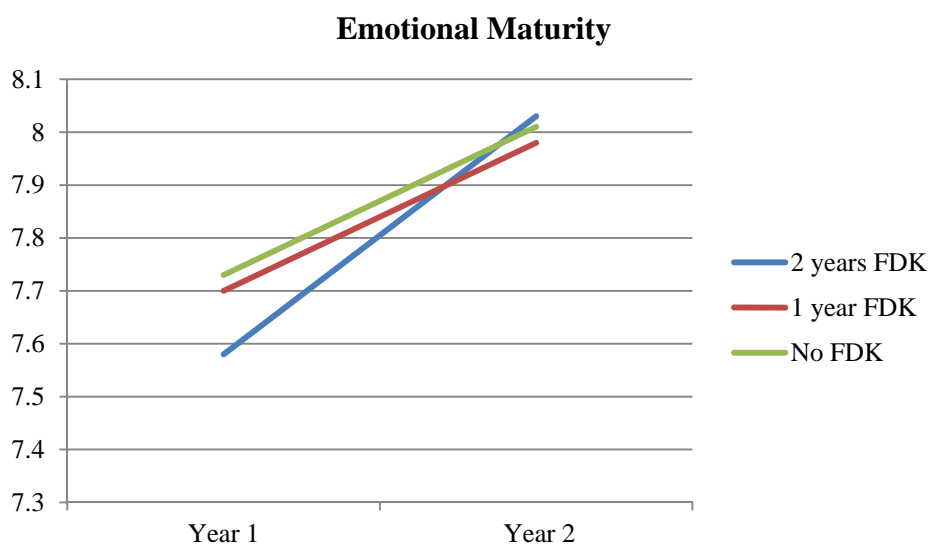


Table 6

Descriptive analyses of the five EDI domains at the school level for groups in the school-based longitudinal analyses (Year 1 JK & Year 2 SK)

	2 years FDK				1 year FDK				No FDK			
	JK Year 1		SK Year 2		JK Year 1		SK Year 2		JK Year 1		SK Year 2	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Physical health & well-being	8.27	1.11	8.75	0.75	8.27	0.84	8.72	0.70	8.43	0.93	8.71	0.84
Social competence	7.90	1.12	8.34	0.77	7.94	1.30	8.25	0.85	8.00	1.12	8.43	0.90
Emotional Maturity	7.58	0.96	8.03	0.67	7.70	0.87	7.98	0.87	7.73	0.78	8.01	0.68
Language & cognitive development	7.95	0.99	8.88	0.83	7.84	0.84	8.79	0.71	7.85	1.18	8.79	0.56
Communication & general knowledge	7.16	1.73	8.04	1.08	6.76	1.54	7.78	1.41	7.29	1.62	7.71	1.29

Figure 1. Emotional Maturity domain scores by FDK Group and year



Note: Figure 1 is for illustration purposes only, as it does not depict the minimum and maximum values (0 to 10).

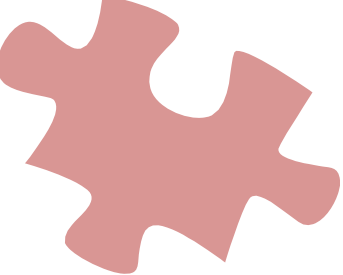


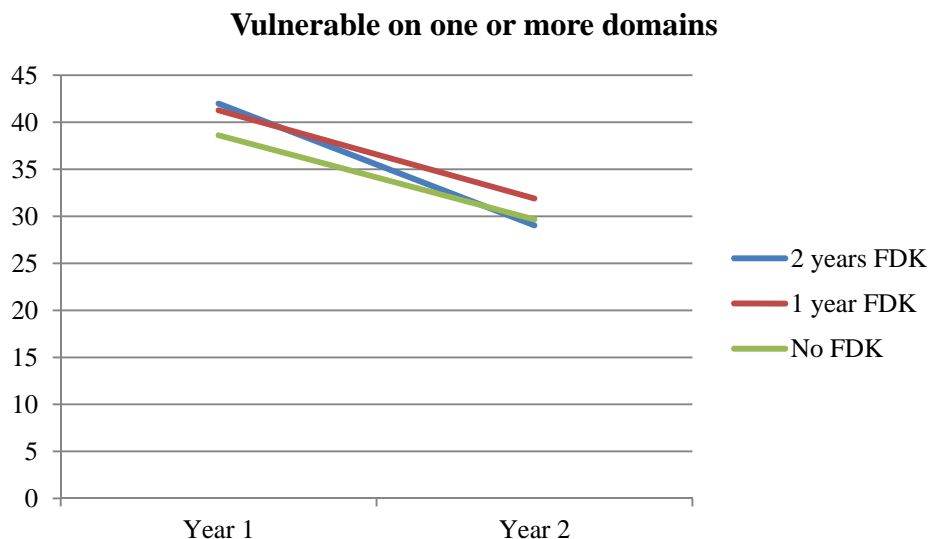
Table 7 presents the percent of children that were vulnerable on one or more domains for Year 1 JKs and Year 2 SKs. There was a significant group difference in the change in overall vulnerability ($p = .003$), with the 2 years FDK group having the largest decrease in percent vulnerable (see table 6 and figure 2).

Table 7

Percentage of children vulnerable on 1 or more domains

	2 years FDK		1 year FDK		No FDK	
	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2
Vulnerability on 1 or more domain	41.99%	29.03%	41.27%	31.89%	38.62%	29.67%

Figure 2. Vulnerability by FDK Group and year



These findings indicate that the group with 2 years FDK had more growth in emotional maturity domain scores than the other two groups. Additionally, the group with 2 years FDK had a greater decrease in vulnerability than the other two groups.

Multilevel analyses of School-based Longitudinal (JK to SK cohort) data by FDK group. These analyses focused on changes in EDI scores and vulnerability separately for schools in each

of the three study groups. For these analyses, the assumption was that children within schools at JK attended the same schools at SK and the impact of the FDK program could be assessed. The results are presented in Appendices M.1 to M.3 and control for the effects of the age of the children, sex composition and E/FSL composition.

There were no statistically significant changes in mean scores and vulnerability for children attending schools in the 2 years FDK group (Appendix M.1). There were increases in the mean scores over the two years for the domains of physical health & wellbeing (0.145, s.e.=0.105), emotional maturity (0.057, s.e.=0.111), and language & cognitive development (0.139, s.e.=0.130) and decreases in mean scores for the social competence (-0.016, s.e.=0.137), communication & general knowledge domains (-0.041, s.e.=0.175). There was also a decrease in the odds of overall vulnerability (-0.09, s.e.=0.173; OR=0.92).

There was a statistically significant decline in the mean social competence score (0.369, s.e.=0.148) and a significant increase in the mean language & cognitive development domain score (0.321, s.e.=0.143) for the children attending schools in the 1 year FDK group (Appendix M.2). However, for children in these groups of schools, there were increased odds of overall vulnerability (0.278, s.e.=0.2; OR=1.32).

Finally, although not statistically significant, there were increases in the mean scores for the domains of the EDI, with the exception of the communication & general knowledge domain (-0.218, s.e.=0.205) for children attending schools in the No FDK group. Moreover, there were decreased odds of overall vulnerability (-0.056, s.e.=0.201; OR=0.95) for children in this group.

Limitations

The study described above was based on a naturalistic experiment with little opportunity for manipulation of study groups for the sake of scientific consistency. Therefore, it is important to point out the limitations.

First, the selection of schools for the phases of FDK implementation was not random, and neither was the selection of boards and schools to be included in the study. The regions of Ontario were chosen to represent the mix of characteristics present in the province; and then school boards were chosen within the regions. Schools in 2 years FDK and No FDK groups were selected based on matching on several demographic characteristics (see *Study Procedures*), and therefore can be considered to conform to a matched design. However the 1-year FDK group schools belonged to the Phase 2 of FDK implementation, which was carried out at a much smaller scale than Phase 1, and therefore no purposeful matching was possible – all schools in Phase 2 in the designated boards needed to be selected. While the school selection strategy was the best possible under the circumstances, it may have inadvertently contributed to some non-conclusive results in the study.

A second important limitation was the requirement of active parental consent for the EDI to be completed by the teacher. Combined with the unexpected delays in implementation of the study, this likely influenced the participation rates, which in both years were only around 50%. As there is solid research evidence suggesting that active consent results in a biased sample, it is difficult to estimate how the low recruitment rate and participant bias might have influenced the study outcomes. Moreover, less than half of the parents who agreed to their children being included in the EDI data collection returned the KPS, while it should have been all of them. This low response rate greatly influenced the usefulness of the KPS data, and is a reason why they are only reported on in Parts 1 and 2 of the Report. Inability to include the family information (SES, activities, child preschool history) as a confounding factor in analyses for all participants was also an important limitation. In addition, the active consent procedure caused some confusion in three school boards and resulted in the loss of SK data from Year 1 in those boards.

Several other individual and school-level factors, difficult to account for, may have had an impact on the outcomes. For example, for children in the No FDK group there was not sufficient information regarding the arrangements for the second half of their week, spent at school by children in FDK groups. The quality of those arrangements may have influenced the results. Also, school-level factors like class size – generally smaller in No FDK classes – may need to be included in future investigations.

In this report, analyses were also limited by the inability to match children directly from Year 1 to Year 2. We understand that this type of analyses is possible in the future and encourage the Ministry to ensure that it is carried out. The school-based longitudinal analyses conducted here were limited by a loss of variation at the child level and statistical power in assessing change over time with the data.

Finally, due to the very nature of the program, the study respondents (teachers) were not blinded to the “treatment” category (FDK or not), and their own belief in the program could have subconsciously affected the way they completed the EDI. Based on the results, we expected that this was not the case, but only a long-term longitudinal data collection can unequivocally address this limitation.



Summary

The findings of the study are summarized below.

- 1) Based on the neighbourhood indicators of SES (SRI), the most precise measure that was available for all children with valid EDI data, SES appeared to be the highest in the 1-year FDK group and the lowest in the No FDK group. This finding seems somewhat contrary to expectation, considering that the 2-years FDK group was selected among schools who were chosen to be in the first Phase of implementation due to socioeconomic disadvantage. However, taken together with the known bias of consented study participation towards families with higher SES, it is likely that the study reached families with higher SES despite the selected schools' population having on average relatively low SES indicators.
- 2) In Year 1 of implementation, SK children in the FDK program had statistically significantly better outcomes than the two other groups in Physical health and well-being, Language and cognitive development, and Communication skills and general knowledge (p.29). Among children in JK in Year 1, scores in Language and cognitive development were the highest in the 2-years FDK group. These analyses were controlling for children's age, gender and neighbourhood Social Risk Index (p.12).
- 3) In Year 2 of implementation, this pattern was not replicated. In almost all domains, children in the No FDK group had better scores than children in either of the groups with FDK, and sometimes this difference was statistically significant. Only among SK children, those in 2-years FDK group had the highest scores in Communication skills and general knowledge, but this failed to reach statistical significance. These analyses were controlling for children's age, gender and neighbourhood Social Risk Index. It is worth noting that the results most in accordance to the expectations based on the assumed advantage of FDK program are in the only year/grade combination where the three study groups were equal in terms of socioeconomic status.
- 4) When children with known demographic risk factors were compared separately in their SK grade in Year 2, some support for the advantageous impact of FDK emerged for the E/FSL group (the learners of the language of instruction). Among the E/FSL children, those in 2-years FDK or even 1-year FDK group had consistently higher scores than those in No FDK group on all five EDI domains. With the exception of Communication skills domain, where children below the mean age in the 2-years FDK group had better scores than others, no expected patterns emerged in relation to gender or age. In fact, children below mean age in the No FDK group had significantly highest scores in Physical, Social, and Emotional domains on the EDI.
- 5) The difference between scores per grade level (JK Year1 to JK Year 2, and SK Year 1 to SK Year 2) showed that there were larger differences between the two years for children in FDK groups than those in No FDK group for JK Language and Cognitive Development



domain and SK Physical health and well-being domain. However, there was a larger difference between the years in Social competence for JK No FDK children than for FDK groups.

- 6) The school-based longitudinal analyses (JK Year 1 to SK Year 2) showed that the highest increase in Emotional maturity scores happened for children in the 2-years FDK group. Also, the highest drop in vulnerability occurred in the 2-years FDK group. These promising findings make it imperative to repeat the longitudinal analyses with individual-level matching of the children.
- 7) There was a growth in Physical health, Emotional maturity, and Language and cognitive development domains, and decrease in vulnerability for children in 2-years FDK group from the Year 1 JK to Year 2 SK, though none of them was statistically significant. There was a statistically significant increase in Language and cognitive development in the 1-year FDK group and a statistically significant decrease in Social competence. None of the changes for the No FDK group were statistically significant.

Conclusions

While some results reported here are promising in indicating a small advantage for children who participate in the FDK learning, most of the outcomes are inconclusive, or even opposite to expectations. It is crucial to view these results in the appropriate perspective. The study at best examines changes over only one full year of FDK, during the first two phases of program implementation, which have likely been challenging due to its novelty.

There is a huge potential for more detailed analyses of the data collected for the study through several channels of which the results presented in this report are just one. Such analyses will likely elucidate some of the consistencies in the present findings. The recommendations of the authors are as follows:

- Priority should be given to linking Year 1 JK data to Year 2 SK data at the individual level, with other potential school- or board-based data, in order to allow for precise path analyses. As emphasized in the project design submitted to Ministry of Education in late 2010 by OCCS, this type of analysis is the most powerful one.
- An effort should be made to continue tracking the families who agreed to participate at least through assessments in Grade 1 and 2, and in particular Grade 3. Population-level programs such as FDK tend to show positive outcomes after several years of implementation.
- Wherever possible, school-level feedback on the implementation of the program should be added to the databases. Information such as class size, infrastructure



challenges, and other barriers that may have influenced smooth implementation could have contributed to the outcomes of this study.

- Finally, there are many more complex and informative statistical techniques that could be applied to ensure the highest possible return of useful information. One such possibility is a technique called “propensity score matching” which could be used with the linked data files to compare children similar in most characteristics across the three study groups. We encourage the Ministry to promote the use of data collected in the course of this study both internally and by external researchers within the parameters of data confidentiality.

References

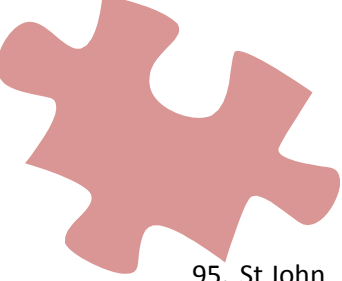
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Appendix A: List of Participating Schools in the FDK ELP

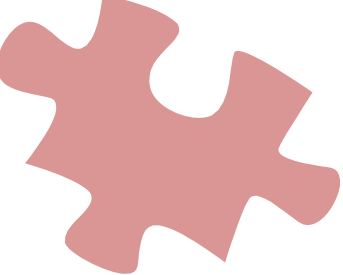
- | | | |
|---|---|---|
| 1. A R Kaufman Public School | 33. ÉEC Marguerite-Bourgeois - Borden | 63. Lions Oval Public School |
| 2. Académie de la Moraine | 34. ÉEC Mère-Élisabeth-Bruyère -
Waterloo | 64. Marius Barbeau |
| 3. Admiral Collingwood E.S. | 35. ÉEC Saint-René-Goupil - Guelph | 65. Monsignor Gleason Catholic
Elementary School |
| 4. Alain Fortin | 36. ÉEC Sainte-Marguerite-Bourgeois -
Markham | 66. Monsignor J.E. Ronan CS - SMC |
| 5. Allandale Heights P.S. | 37. Élémentaire Publique Des Sentiers | 67. Mooretown-Courtright |
| 6. Angus Morrison E.S. | 38. Élémentaire Publique L'Académie de la
Seigneurie | 68. Mountain View E.S. |
| 7. Ardtrea-Cumberland Beach P.S. | 39. Élémentaire Publique L'Équinoxe | 69. Munster ES |
| 8. Assikinack P.S. | 40. Élémentaire Publique Marie-Curie | 70. NorthStar Community School |
| 9. Ayr Public School | 41. Élémentaire Publique Rose des Vents | 71. Oakley Park P.S. |
| 10. Barrhaven PS | 42. Élémentaire Publique Séraphin-Marion | 72. Orchard Park P.S. |
| 11. Bayshore PS | 43. ÉP des Navigateurs | 73. Our Lady Of Peace School |
| 12. Bells Corners PS | 44. ÉP Étoile du Nord | 74. Pierre-Elliott-Trudeau |
| 13. Blessed Kateri Tekakwitha | 45. ÉP Lionel Gauthier | 75. Pope John Paul II SS - SMC |
| 14. Blessed Sacrament | 46. Fallingbrook ES | 76. Portage View P.S. |
| 15. Bridgeport Public School | 47. Federal Public School | 77. Prince of Peace School |
| 16. Bridlewood ES | 48. Forest Hill Public School | 78. Prince of Wales P.S. |
| 17. Canadian Martyrs CS - SMC | 49. Gabrielle-Roy | 79. Pruetter Public School |
| 18. Cedar Creek Public School | 50. George-Étienne-Cartier | 80. Queen Elizabeth-Sarnia |
| 19. Central Public School | 51. Hillcrest P.S. | 81. Queen Mary St.PS |
| 20. Chalmers Street Public School | 52. Holy Cross Catholic School-SMC | 82. R.E. Wilson PS |
| 21. Charles H Hulse | 53. Horizon Jeunesse | 83. Robert Hopkins |
| 22. Cochrane Public School | 54. Howard Robertson Public School | 84. Robert Moore School |
| 23. Connaught PS | 55. Iroquois Falls Public School | 85. Rockway Public School |
| 24. Cookstown P.S. | 56. Jockvale ES | 86. Rosedale |
| 25. De la Découverte | 57. King Edward Public School | 87. Sacred Heart School - SMC |
| 26. Des Pins | 58. L'Envol | 88. Saint-Jean-de-Brébeuf |
| 27. Dunlop PS | 59. La Fontaine | 89. Saint-Philippe |
| 28. École catholique Assomption (Earlton) | 60. Lamoureux | 90. Sainte-Anne |
| 29. École catholique Sainte Croix | 61. Lansdowne | 91. Sainte-Catherine |
| 30. École Louis Rheaume | 62. Le Petit Prince | 92. Sainte-Geneviève |
| 31. ÉEC Cardinal-Léger - Kitchener | | 93. Sir Edgar Bauer |
| 32. ÉEC Frère-André - Barrie | | 94. St Gregory |





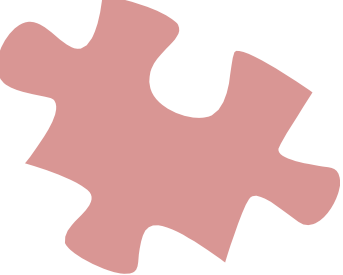
95. St John
96. St Joseph
97. St Michael
98. St Nicholas
99. St Teresa
100. St Vincent de Paul
101. St. Augustine School
102. St. Bernard School
103. St. Elizabeth Ann Seton School
104. St. Elizabeth School
105. St. Joseph
106. St. Marguerite d'Youville
107. St. Mary's (Collingwood)
108. St. Matthew
109. St. Michael (Corkery) School
110. St. Michael (Fitzroy) School
111. St. Monica's Separate School
112. St. Noel Chabanel
113. St. Patrick School
114. St. Patrick's School
115. St. Paul's Separate School-SMC
116. Stewart Avenue Public School
117. Sunnybrae P.S.
118. Tilbury
119. Timmins Centennial Public Scho
120. Victor Lauriston
121. W.E. Johnston PS
122. Warnica P.S.
123. Westwind PS
124. Wilson Avenue Public School
125. Winston Churchill
126. Winston Churchill Public School





Appendix B: Year 1 JK Domains score Comparisons controlling for SRI

Domains	Mean (SD)			p-value
	2 years FDK group	1 year FDK group	No FDK group	
Physical Health & Well-being	8.39 (1.52)	8.45 (1.48)	8.53 (1.46)	.071
Social Competence	8.07 (1.93)	8.26 (1.82)	8.19 (1.94)	.181
Emotional Maturity	7.72 (1.59)	7.91 (1.50)	7.82 (1.56)	.115
Language & Cognitive Development	8.08 (1.88)	7.81 (2.02)	7.96 (2.04)	.023
Communication Skills & General Knowledge	7.37 (2.62)	7.15 (2.71)	7.40 (2.67)	.053



Appendix C: Year 1 JK Vulnerability Comparisons controlling for SRI

Domains	% Vulnerable (ON Baseline cut-offs)				
	2 yrs FDK group	1 yr FDK group	No FDK group	p-value	
				2 years FDK vs. No FDK	1 year FDK vs. No FDK
Physical Health & Well-being	26.6	18.6	20.7	.941	.651
Social Competence	12.7	9.4	11.6	.048	.715
Emotional Maturity	15.8	11.9	14.6	.007	.222
Language & Cognitive Development	12.7	16.5	15.8	.370	.048
Communication Skills & General Knowledge	15.2	17.3	15.6	.269	.013
Vulnerable on one or more EDI domains	40.6	36.0	36.5	.343	.274

Appendix D: Year 1 SK Domain scores comparisons controlling for SRI

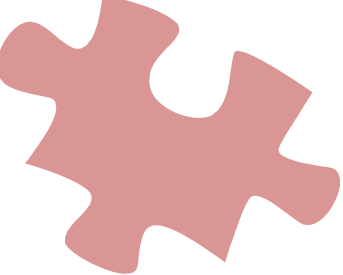
Domains	Mean (SD)			p-value
	2 years FDK group	1 year FDK group	No FDK group	
Physical Health & Well-being	8.83 (1.35)	8.63 (1.37)	8.66 (1.48)	.039
Social Competence	8.39 (1.83)	8.49 (1.92)	8.51 (1.72)	.449
Emotional Maturity	8.00 (1.51)	8.11 (1.61)	8.18 (1.49)	.174
Language & Cognitive Development	9.09 (1.31)	8.93 (1.45)	8.90 (1.46)	.049
Communication Skills & General Knowledge	7.99 (2.42)	7.77 (2.42)	7.58 (2.51)	.021



Appendix E: Year 1 SK Vulnerability Comparisons controlling for SRI

EDI Domains	% Vulnerable (ON Baseline cut-offs)				
	2 years FDK group	1 year FDK group	No FDK group	p-value	
				2 years FDK vs. No FDK	1 year FDK vs. No FDK
Physical Health & Well-being	14.7	16.2	17.8	.448	.774
Social Competence	9.7	9.4	9.2	.831	.539
Emotional Maturity	10.7	13.1	9.5	.137	.110
Language & Cognitive Development	4.3	6.8	5.4	.139	.972
Communication Skills & General Knowledge	11.9	10.2	12.7	.472	.330
Vulnerable on one or more EDI domains	28.5	28.7	28.1	.257	.812





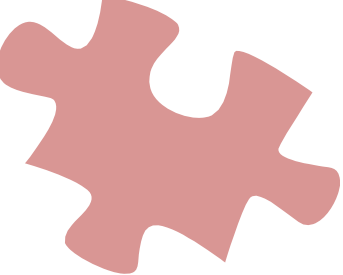
Appendix F: Year 2 JK Domains score Comparisons controlling for SRI

Domains	Mean (SD)			p-value
	2 years FDK group	1 year FDK group	No FDK group	
Physical Health & Well-being	8.47	8.30	8.75	< .001
Social Competence	7.96	7.85	8.41	< .001
Emotional Maturity	7.52	7.56	7.71	.042
Language & Cognitive Development	7.42	7.71	7.49	.118
Communication Skills & General Knowledge	7.30	7.07	7.46	.004

Appendix G: Year 2 JK Vulnerability Comparisons controlling for SRI

EDI Domains	% Vulnerable (ON Baseline cut-offs)				
	2 years FDK group	1 year FDK group	No FDK group	p-value	
				2 yrs FDK vs. No FDK	1 yr FDK vs. No FDK
Physical Health & Well-being	23.5%	24.5%	16.4%	.019	.012
Social Competence	12.3%	15.3%	9.8%	.486	.156
Emotional Maturity	18.0%	18.3%	15.4%	.225	.504
Language & Cognitive Development	22.1%	17.9%	19.9%	.220	.352
Communication Skills & General Knowledge	17.4%	17.0%	16.4%	.355	.105
Vulnerable on one or more EDI domains	43.6%	42.6%	38.0%	.122	.047





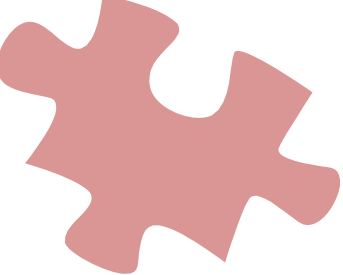
Appendix H: Year 2 SK Domains score Comparisons controlling for SRI

Domains	Mean (SD)			p-value
	2 years FDK group	1 year FDK group	No FDK group	
Physical Health & Well-being	8.89	8.85	8.98	.031
Social Competence	8.47	8.44	8.66	.002
Emotional Maturity	8.06	8.13	8.12	.452
Language & Cognitive Development	8.92	8.99	8.93	.718
Communication Skills & General Knowledge	8.18	8.13	8.01	.690

Appendix I: Year 2 JK Vulnerability Comparisons controlling for SRI

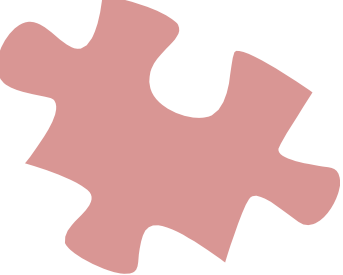
EDI Domains	% Vulnerable (ON Baseline cut-offs)				
	2 years FDK group	1 year FDK group	No FDK group	p-value	
				2 yrs FDK vs. No FDK	1 yr FDK vs. No FDK
Physical Health & Well-being	14.2%	15.2%	12.0%	.642	.118
Social Competence	8.3%	9.8%	7.5%	.549	.142
Emotional Maturity	10.6%	10.9%	8.7%	.625	.016
Language & Cognitive Development	6.6%	4.8%	5.8%	.634	.932
Communication Skills & General Knowledge	8.3%	8.7%	10.7%	.580	.542
Vulnerable on one or more EDI domains	25.7%	28.5%	23.5%	.655	.008





Appendix J: Year 2 JK At-risk group comparisons: Boys

Domains	Mean			p-value
	2 years FDK group	1 year FDK group	No FDK group	
Physical Health & Well-being	8.72	8.78	8.84	.438
Social Competence	8.02	8.06	8.34	.462
Emotional Maturity	7.63	7.76	7.77	.072
Language & Cognitive Development	8.64	8.77	8.80	.041
Communication Skills & General Knowledge	7.75	7.71	7.88	.204



Appendix K: Year 2 JK At-risk group comparisons: E/FSL children

Domains	Mean			p-value
	2 years FDK group	1 year FDK group	No FDK group	
Physical Health & Well-being	9.06	8.72	8.93	.412
Social Competence	8.51	8.49	8.18	.175
Emotional Maturity	8.13	8.40	7.74	.056
Language & Cognitive Development	8.75	8.70	8.50	.822
Communication Skills & General Knowledge	7.56	6.94	6.97	.001

Appendix L: Year 2 JK At-risk group comparisons: Children below the mean age (Mean Age = 5.74 years)

Domains	Mean (SD)			p-value
	2 years FDK group	1 year FDK group	No FDK group	
Physical Health & Well-being	8.74	8.64	8.80	.165
Social Competence	8.28	8.11	8.53	.472
Emotional Maturity	7.85	7.94	8.07	.060
Language & Cognitive Development	8.68	8.76	8.71	.188
Communication Skills & General Knowledge	7.83	7.69	7.68	.455



Appendix M: Cross-sectional analyses of differences in outcomes between the two JK cohorts

Response	PHWB		SOC		EMOT		LANGCOG		COMGEN		LOW	
	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.
Fixed Part												
cons	5.37	0.42	4.936	0.545	5.731	0.448	2.161	0.569	2.526	0.735	3.329	0.697
Year 2	-0.159	0.629	0.223	0.833	-0.442	0.686	-2.274	0.872	-1.912	1.103	1.786	1.054
FDK year 1 and year 2	0.015	0.175	-0.131	0.178	-0.023	0.139	0.011	0.179	0.039	0.302	0.155	0.198
FDK year 2 only	-0.067	0.179	-0.042	0.184	0.063	0.144	-0.305	0.185	-0.5	0.309	0.045	0.205
age	0.643	0.08	0.74	0.106	0.507	0.087	1.261	0.111	1.157	0.14	-0.872	0.138
M	-0.274	0.06	-0.725	0.08	-0.816	0.066	-0.434	0.084	-0.758	0.106	0.625	0.098
E/FSL status	-0.067	0.078	-0.316	0.102	-0.269	0.084	-0.763	0.107	-2.274	0.137	0.47	0.121
Year 2.FDK year 1 and year 2	-0.173	0.11	-0.07	0.145	-0.131	0.119	-0.073	0.152	0.024	0.193	0.037	0.176
Year 2.FDK year 2 only	-0.212	0.118	-0.395	0.156	-0.21	0.128	0.521	0.163	0.174	0.208	0.176	0.19
Year 2.M	-0.152	0.086	-0.17	0.114	-0.073	0.094	-0.232	0.119	0.1	0.151	0.279	0.14
Year 2.E/FSL status	0.142	0.103	0.201	0.136	0.166	0.112	0.28	0.142	0.416	0.181	0.152	0.164
Year 2.age	0.116	0.128	0.003	0.17	0.094	0.14	0.415	0.178	0.408	0.225	-0.432	0.217
Random Part												
Level: sch_id												
cons/cons	0.484	0.072	0.408	0.068	0.233	0.041	0.393	0.068	1.429	0.213	0.446	0.081
Level: id												
bcons.1/bcons.1											1	0
cons/cons	1.712	0.04	3.02	0.07	2.055	0.048	3.314	0.077	5.27	0.123		
-2*loglikelihood:	13106.722		15193.737		13712.823		15535.053		17381.102			
DIC:												
pD:												
Units: sch_id	124		124		124		124		124		124	
Units: id	3806		3806		3806		3806		3806		3806	

Appendix N: Cross-sectional analyses of differences in outcomes between the two SK cohorts

Response	PHWB		SOC		EMOT		LANGCOG		COMGEN		LOW	
	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.
Fixed Part												
cons	5.311	0.581	5.496	0.795	5.084	0.675	4.357	0.669	3.146	1.055	3.309	1.111
Year 2	0.781	0.754	-0.072	1.044	0.681	0.886	-0.11	0.882	-1.29	1.381	0.399	1.485
FDK year 1 and year 2	0.237	0.183	0.021	0.194	-0.006	0.17	0.161	0.145	0.461	0.279	-0.127	0.244
FDK year 2 only	-0.304	0.189	-0.008	0.204	0.061	0.178	0.005	0.154	-0.112	0.292	0.162	0.256
M	-0.229	0.067	-0.648	0.093	-0.663	0.079	-0.31	0.079	-0.661	0.123	0.527	0.135
age	0.596	0.096	0.566	0.133	0.569	0.113	0.809	0.112	0.87	0.176	-0.796	0.187
E/FSL status	0.118	0.092	-0.211	0.127	-0.161	0.108	-0.231	0.106	-1.44	0.168	0.54	0.171
Year 2.FDK year 1 and year 2	-0.204	0.113	-0.191	0.156	-0.108	0.132	-0.167	0.13	-0.261	0.207	0.179	0.225
Year 2.FDK year 2 only	0.302	0.126	-0.178	0.172	-0.036	0.146	0.007	0.144	0.167	0.229	-0.037	0.245
Year 2.M	0.013	0.085	-0.08	0.118	-0.113	0.1	-0.103	0.1	0.032	0.156	0.152	0.173
Year 2.age	-0.102	0.128	0.059	0.178	-0.086	0.151	0.052	0.15	0.306	0.235	-0.122	0.255
Year 2.E/FSL status	-0.139	0.111	0.048	0.152	0.122	0.129	-0.081	0.128	0.057	0.202	-0.189	0.21
Random Part												
Level: sch_id												
cons/cons	0.484	0.072	0.41	0.07	0.329	0.055	0.183	0.035	0.953	0.154	0.494	0.098
Level: id												
bcons.1/bcons.1											1	0
cons/cons	1.296	0.033	2.509	0.064	1.803	0.046	1.802	0.046	4.377	0.112		
-2*loglikelihood:	10058.011		12069.89		11034.505		10982.821		13856.472			
DIC:												
pD:												
Units: sch_id	121		121		121		121		121		121	
Units: id	3164		3164		3164		3164		3164		3164	

Appendix O: Analyses of change in domain scores and vulnerability for the JK to SK cohort in the 2 years FDK group

Response	PHWB		SOC		EMOT		LANGCOG		COMGEN		LOW	
	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.
Fixed Part												
cons	5.798	0.526	5.262	0.68	6.052	0.551	3.361	0.646	2.448	0.873	3.288	0.862
Year 2	0.145	0.105	-0.016	0.137	0.057	0.111	0.139	0.13	-0.041	0.175	-0.09	0.173
age	0.541	0.103	0.632	0.134	0.405	0.109	1.002	0.127	1.152	0.171	-0.816	0.171
M	-0.307	0.068	-0.751	0.09	-0.784	0.073	-0.509	0.085	-0.85	0.114	0.672	0.113
E/FSL status	0.148	0.1	-0.056	0.128	-0.025	0.104	-0.366	0.122	-1.577	0.166	0.135	0.158
Random Part												
Level: sch_id												
cons/cons	0.433	0.108	0.319	0.093	0.201	0.059	0.332	0.094	0.938	0.245	0.564	0.16
Level: id												
bcons.1/bcons.1											1	0
cons/cons	1.777	0.064	3.083	0.112	2.023	0.073	2.765	0.1	4.956	0.18		
-2*loglikelihood:	5421.213		6252.721		5593.238		6087.698		7014.371			
DIC:												
pD:												
Units: sch_id	43		43		43		43		43		43	
Units: id	1562		1562		1562		1562		1562		1562	

Appendix P: Analyses of change in domain scores and vulnerability for the JK to SK cohort in the 1 year FDK group

Response	PHWB		SOC		EMOT		LANGCOG		COMGEN		LOW	
	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.
Fixed Part												
cons	5.44	0.542	3.757	0.727	4.657	0.611	1.659	0.7	2.289	0.975	4.622	0.988
Year 2	0.086	0.11	-0.369	0.148	-0.198	0.124	0.321	0.143	0.355	0.198	0.278	0.2
Age	0.607	0.106	0.959	0.143	0.717	0.12	1.269	0.138	1.095	0.191	-1.113	0.198
M	-0.196	0.074	-0.754	0.1	-0.796	0.084	-0.439	0.097	-0.854	0.133	0.689	0.131
E/FSL status	-0.121	0.109	-0.305	0.144	-0.061	0.122	-0.566	0.137	-1.935	0.196	0.396	0.18
Random Part												
Level: sch_id												
cons/cons	0.332	0.09	0.232	0.078	0.173	0.057	0.115	0.048	0.875	0.244	0.292	0.108
Level: id												
bcons.1/bcons.1											1	0
cons/cons	1.583	0.065	2.932	0.121	2.07	0.085	2.766	0.114	5.151	0.213		
-2*loglikelihood:	4073.835		4792.831		4371.671		4707.152		5498.25			
DIC:												
pD:												
Units: sch_id	41		41		41		41		41		41	
Units: id	1213		1213		1213		1213		1213		1213	

Appendix Q: Analyses of change in domain scores and vulnerability for the JK to SK cohort in No FDK group

Response	PHWB		SOC		EMOT		LANGCOG		COMGEN		LOW	
	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.	coeff	S.E.
Fixed Part												
cons	6.533	0.56	6.432	0.701	6.646	0.576	2.841	0.728	2.997	0.988	2.465	0.966
Year 2	0.164	0.116	0.054	0.146	0.098	0.12	0.192	0.152	-0.218	0.205	-0.056	0.201
age	0.408	0.109	0.45	0.137	0.333	0.113	1.094	0.144	1.008	0.192	-0.702	0.192
M	-0.269	0.075	-0.771	0.095	-0.834	0.078	-0.414	0.1	-0.392	0.133	0.578	0.131
E/FSL status	-0.11	0.095	-0.424	0.119	-0.271	0.098	-0.675	0.123	-1.897	0.168	0.699	0.158
Random Part												
Level: sch_id												
cons/cons	0.553	0.144	0.457	0.131	0.274	0.08	0.229	0.079	1.485	0.395	0.649	0.198
Level: id												
bcons.1/bcons.1	1.627	0.067	2.628	0.109	1.782	0.074	2.922	0.121	5.104	0.211		
cons/cons											1	0
-2*loglikelihood:	4109.299		4668.203		4194.576		4774.51		5487.65			
DIC:												
pD:												
Units: sch_id	40		40		40		40		40		40	
Units: id	1210		1210		1210		1210		1210		1210	

