



**Understanding
The Early Years**



The School Readiness of Red Deer's Kindergarten Children

**A Preliminary report on the results of the Early
Development Instrument (EDI)**

November 2009



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For the Red Deer *Understanding the Early Years* Project : November 2009

The opinions and interpretations in this publication are those of the authors and do not necessarily reflect those of the Government of Canada.

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ACKNOWLEDGEMENTS:

- Laurie Lafortune, Walter Lidster, Donna Morrison
- The UEY Advisory and Knowledge Sharing Committees
- Red Deer Catholic Schools and their kindergarten teachers
- Red Deer Public Schools and their kindergarten teachers
- The Offord Centre for Child Studies, McMaster University
- The Government of Canada's Understanding the Early Years Initiative

The Red Deer UEY Project is funded by the Government of Canada's Understanding the Early Years Initiative.



Table of Contents

	Page
1. Red Deer <i>Understanding the Early Years</i> (UEY) Project	6
2. Purpose of this Report	7
3. The Early Development Instrument-A Population-Based Measure for Communities (EDI)	8
4. EDI results at the domain level of analysis-Compared to Canadian Normative Cohort	10
4.1 Mean Scores by EDI domains	10
4.2 Percentage children who scored low on one or two of the EDI Domains.....	12
4.3 Percentage of vulnerable children in Red Deer by EDI domain	13
4.4 Effects of Demographic and Pre-school Experiences on Readiness Measures.....	14
4.4.1 Gender of the Child.....	15
4.4.2 Age of Child	16
4.4.3 Children with English as Second Language (ESL) status	17
4.4.4 Children who attended French immersion programs	18
4.4.5 Children with Aboriginal status	19
4.4.6 Children who attended an early intervention program.....	20
4.4.7 Children who attended language or religion Classes.....	21
4.4.8 Children who attended part-time preschool	22
4.4.9 Type of non-parental care arrangement	23
5. EDI Results at sub-domain level of analysis	24
5.1 Physical Health and Well-Being	25
5.2 Social Competence	27
5.3 Emotional Maturity.....	29
5.4 Language and Cognitive Development.....	31
5.5 Communication Skills and General Knowledge	33
6. Multiple Challenge Index.....	34
7. Conclusion.....	35

List of Tables and Figures

	Page
Figure 1. Comparison of mean scores in each of the 5 EDI domains – Red Deer and Normative scores.....	11
Figure 2. Proportion of Red Deer cohort who are ready, middle and not ready for school in the sub-domains for physical health and well being.	26
Figure 3. Proportion of Red Deer cohort who are ready, middle and not ready for school in the sub-domains for social competence.....	28
Figure 4. Proportion of Red Deer cohort who are ready, middle and not ready for school in the sub-domains for emotional maturity	30
Figure 5. Proportion of Red Deer cohort who are ready, middle and not ready for school in the sub-domains for language and cognitive development.....	32
Figure 6. Relative percentage of children who are ready, middle and not ready in the domain of communication skills and general knowledge	33
Table 1: Percentages of children who scored low on at least one or two of the five EDI domains	12
Table 2: Percentage of Vulnerable Children in one or more domains, from the Red Deer sample	13
Table 3: Effect of gender of the child on mean scores in EDI domains	15
Table 4: Effect of age of child on mean scores in EDI domains	16
Table 5: Effect of English as Second Language (ESL) Status on mean scores in EDI domains	17
Table 6: Effect of French Immersion on mean scores in EDI domains	18
Table 7: Effect of Aboriginal Status on mean scores in EDI domains	19
Table 8: Effect of attending an early intervention program on mean scores in EDI domains	20
Table 9: Effect of attending language or religious classes on mean scores in EDI domains	21
Table 10: Effect of attending part-time preschool on mean scores in EDI domains.....	22
Table 11: Effect of type of non-parental care arrangement on mean scores in EDI domains	23
Table 12: EDI domains and sub-domains	24
Table 13: Percentage of Children with Multiple Challenges.....	34

Executive summary

- In all 5 developmental domains -- *Physical health and well-being, Social competence, Emotional maturity, Language and cognitive development, Communication skills and general knowledge* -- the Red Deer sample of 850 kindergarten children achieved higher mean scores than the Canadian sample of 176,621 Canadian kindergarten children.
- Of the sample of Red Deer kindergarten children, 17.8% scored low on at least one readiness to learn domain and 9.4% scored low on at least two domains.
- The greatest strength for children in the Red Deer sample was in the Physical readiness for school sub-domain.
- The demographic factors of gender, age, and Aboriginal status have statistically significant influence on all 5 developmental domains.
- Attendance at part time preschool has a statistically significant influence on all 5 developmental domains.
- Attendance at a French immersion program had a significant influence on four domains, but did not significantly influence the physical health and well being domain.
- English as a Second Language, (ESL) status, and attendance at early intervention programs, language or religious classes, type of non-parental care arrangement were mixed in terms of significance.
- On the physical health and wellbeing sub-domains, gross and fine motor skills showed the fewest children with developmental readiness.
- A significantly lower percentage of Red Deer children have multiple challenges, (i.e., low scores on 9 or more developmental domains) with 2.1% of the Red Deer sample of children compared 3.9% for the Canadian sample.
- The results revealed that communication skills and general knowledge was the most challenging domain for Red Deer children.

1. Red Deer Understanding the Early Years (UEY) Project

The Red Deer *Understanding the Early Years* Project is one of 16 UEY projects currently being completed across Canada. Since 1999, forty-nine UEY projects have been undertaken across Canada. The UEY Red Deer Project is funded by the Government of Canada's Understanding the Early Years Initiative.

The goal of the Red Deer Understanding the Early Years (UEY) Project is to enable the community to better understand the needs of young children and their families so that programs and services can be developed to meet those needs. In order to achieve this goal, UEY aims to build community capacity to use local research to enhance children's lives and enable community members to work together to address the needs of children. The project provides quality information on the school readiness of kindergarten children, family and community factors that influence children's development, and the availability of local resources to support young children and their families. Parents, teachers, key decision-makers, and others interested in the well-being of children can then work together to address issues identified by this information.

In Red Deer, the UEY project, led by Family Services of Central Alberta with support from Red Deer Catholic and Red Deer Public Schools and other key stakeholders, has worked to meet the following specific objectives:

- To conduct research on young children to gain understanding of current and emerging needs.
- To identify service and information gaps for children under six in Red Deer.
- To provide a baseline of information on Red Deer's children, birth to 5 years of age, and their parents.
- To enhance Red Deer's human service providers' capacity to work together.
- To increase responsiveness to children and parents in service provision.
- To raise awareness of the importance of the early years and early childhood development among parents, stakeholders and the broader Red Deer community.
- To create an evidenced-based community action plan for young children and families.

2. Purpose of This Report

It is widely understood that the development of children in the early years is fundamentally important for success in school as well as for future achievement and well being into adulthood. Children are born ready to learn; their neurosystem is pre-programmed to develop various skills depending on the experiences they receive.

School readiness-to-learn is a concept that is increasingly being used and studied. But what does readiness-to-learn at school mean, and how can it be measured? Children who are developmentally ready to learn at school typically succeed in formal schooling, but children who start school not ready are at a disadvantage and often struggle throughout their school years. The degree to which a child is ready to learn at school predicts how well they will do at school.

There is no universal definition of school readiness; however, for the UEY project the definition includes the child's ability to meet the task demands at school and the child's ability to benefit from the educational activities provided by the school.¹ School readiness is assessed in the UEY studies using the *Early Development Instrument-A Population-Based Measure for Communities* (EDI) to measure the developmental outcomes of children's early years. The EDI is designed to report on groups of children and does not provide diagnostic information on individual children nor measure school performance. The primary purpose of this report is to provide the key findings from the EDI data collection in Red Deer. The EDI was completed in Red Deer by teachers for 850 non-special needs kindergarten students in February 2009.

¹ Offord Centre for Child Studies. (2004). *Early Development Instrument (EDI): A population based measure for communities – Factsheet*. Hamilton, Ontario: McMaster University. Available at: http://offordcentre.com/readiness/files/EDI_Factsheet.pdf (Accessed 2009/09/18)

3. The Early Development Instrument-A Population-Based Measure for Communities (EDI)

The EDI was developed in 1998 by Dr. Dan Offord and Dr. Magdelana Janus at the Offord Centre for Child Studies at McMaster University. It has been completed on over 500,000 kindergarten students in countries around the world. In Canada, the EDI has been completed in parts of all provinces, with Ontario, Manitoba, and British Columbia, having collection across the province, and Saskatchewan, New Brunswick, Nova Scotia, and Alberta working toward full provincial data collection.

The Early Development Instrument (EDI) is a teacher-completed checklist which measures children's readiness to learn at school in five domains: *physical health and well-being; social knowledge and competence; emotional health/maturity; language and cognitive development; and general knowledge and communication skills*. The instrument was designed to provide information for groups of children in order to:

- report on populations of children in different communities
- determine developmental readiness for school
- predict how children will do in elementary school.

The EDI consists of 104 core questions grouped into five scales or domains. The five domains examined by the EDI are listed below, with the related areas of development that comprise the domains.

A. Physical Health and Well-being

- gross and fine motor skills
- holding a pencil
- running on the playground
- motor coordination
- adequate energy levels for classroom activities
- independence in looking after own needs

B. Social Competence

- curiosity about the world and eagerness to try new experiences
- knowledge of standards of acceptable behavior in a public place
- ability to control own behavior
- cooperation with others
- ability to play and work with other children
- following rules

C. Emotional Maturity

- ability to reflect before acting
- a balance between too fearful and too impulsive
- ability to deal with feelings at an age-appropriate level
- empathy

D. Language and Cognitive Development

- reading awareness
- age appropriate reading and writing skills
- age appropriate numeracy skills
- understanding of similarities and differences
- able to recite specific pieces of information from memory

E. Communication Skills and General Knowledge

- ability to communicate needs and wants in appropriate ways
- symbolic use of language
- storytelling
- age appropriate knowledge about the world

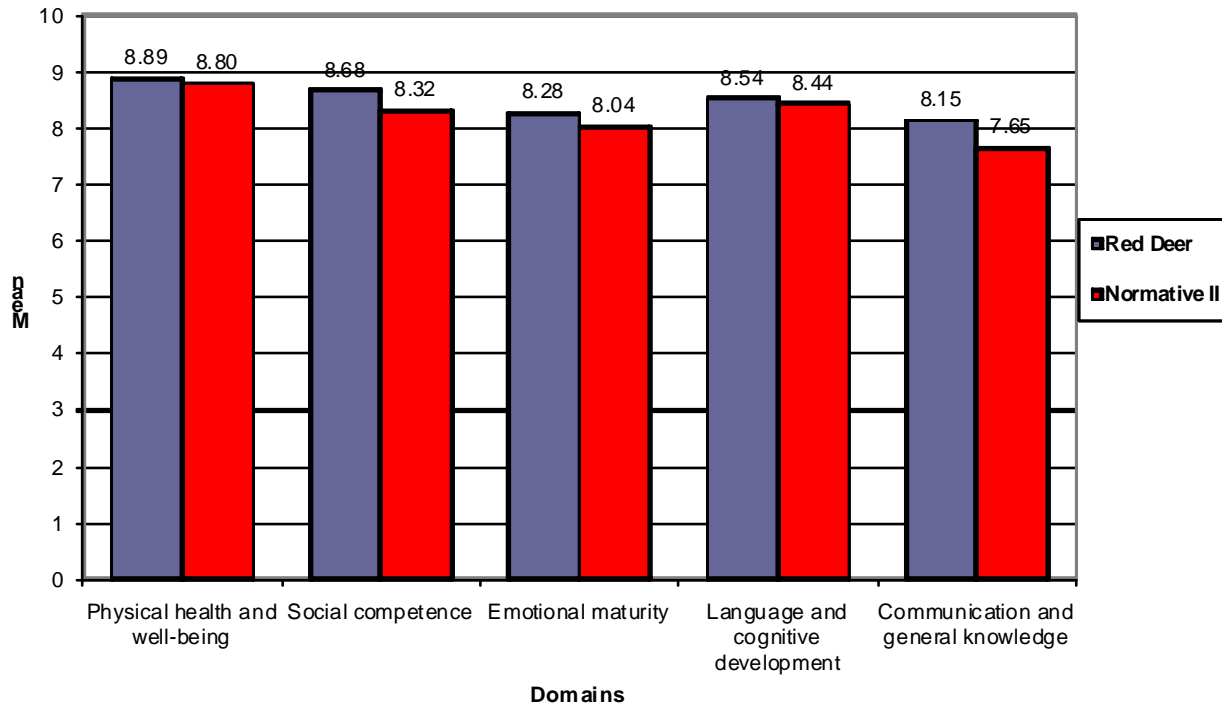
4. EDI results at the domain level of analysis-Compared to Canadian Normative Cohort

4.1 Mean scores by EDI domains

The following graph provides a comparison between the mean scores in each domain for the Red Deer cohort with the “normative” scores of children across Canada. Normative scores are calculated from a sample of EDI data that has been collected across the country and based upon children who have not been identified as having “special needs.” The Normative II sample size is 176,621.

In all domains, the Red Deer cohort achieved higher mean scores than the normative sample.

Figure 1: Comparison of mean scores in each of the 5 EDI domains – Red Deer and Normative scores



4.2 Percentage children who scored low on one or two of the EDI Domains

The percentage of children who scored low on at least one or two of the five domains was calculated. Table 1 illustrates the percentages of Red Deer children who scored low on at least one and two domains in comparison to the Canadian normative cohort.

Table 1: Percentages of children who scored low on at least one or two of the five EDI domains

	Percentages	
	Red Deer	Canadian Normative II Cohort
Low on at least one developmental readiness domain	17.8%	27.2%
Low on at least two developmental readiness domains	9.4%	13.6%

Compared to the Canadian normative cohort, the percentage of children who scored low on at least one developmental readiness domain was 17.8%. The percentage of children who scored low on at least two developmental readiness domains was 9.4%.

4.3 Percentage of vulnerable children in Red Deer by EDI domain

Vulnerable children are considered to be those whose scores fall below the 10th percentile. These children are not at all developmentally ready to handle the tasks and expectations of school. (Children with identified special needs are not included in these results).

The following table illustrates the percentage of Red Deer children in the Red Deer sample, who fell below the 10th percentile cut-off (and thus are considered vulnerable) in one or more of the five domains.

Table 2: Percentage of Vulnerable Children in one or more domains, from the Red Deer sample

Domains	% Vulnerable
	Red Deer Cut-offs
Physical Health and Well-Being	12.5%
Social Competence	11.3%
Emotional Maturity	9.4%
Language and Cognitive Development	10.0%
Communication skill & General Knowledge	13.6%

4.4 Effects of Demographic and Pre-school Experiences on Readiness Measures

This section reports on whether demographic and preschool experiences have effects on the five domains of children's development. Nine demographic and pre-school experiences were selected for this report. Gender and age of children, English as a Second Language, French Immersion, and Aboriginal Status were the demographic variables.

Pre-school experiences included children who attended an early intervention program, a language or religion class, part time preschool as well as the type of non-parental child care arrangement. In order to illustrate the influence of these variables on the domains of readiness to learn, mean score comparisons were used.

4.4.1 Gender of the Child

Based on the mean scores, significant differences were found between girls and boys. With respect to every domain girls scored higher than boys. For example, the highest and the lowest score for girls and boys were recorded on *physical health and well-being* and *communication skills and general knowledge* respectively. For *physical health and well-being* girls scored 9.07 while boys score 8.69. On *communication skills and general knowledge* girls scored 8.43 compared to 7.85 for boys. Table 5 depicts the comparative mean score on the five domains for boys and girls. *Note: This is a consistent developmental phenomenon across all sites where the EDI has been implemented.*

Table 3: Effect of gender of the child on mean scores in EDI domains

Domains	Girls			Boys			Statistically Significant?
	N	Mean	SD	N	Mean	SD	
Physical health and well-being	433	9.07	1.15	417	8.69	1.36	Yes
Social competence	433	9.08	1.20	416	8.26	1.76	Yes
Emotional maturity	433	8.67	1.20	413	7.86	1.55	Yes
Language and cognitive development	433	8.78	1.44	417	8.29	1.72	Yes
Communication skills and general knowledge	433	8.43	2.11	417	7.85	2.41	Yes

4.4.2 Age of Child

The mean age of Red Deer children assessed was 5.71 years. Differences appeared between children above the mean age and children below the mean age. The mean comparisons found significant differences on all the five domains between these two groups. Children above the mean age recorded better levels of readiness to learn than children below the mean age.

Note: This is a consistent developmental phenomenon across all sites where the EDI has been implemented.

Children above the mean age scored 9.08 compared to 8.69 for children below the mean age on *physical health and well-being*. On *emotional maturity*, children above recorded a mean score of 8.47 compared to 8.08 for children below the mean age. Table 4 shows the comparative scores on the five domains for the two groups.

Table 4: Effect of age of child on mean scores in EDI domains

Domains	Above mean age			Below the mean age			Statistically Significant?
	N	Mean	SD	N	Mean	SD	
Physical health and well-being	432	9.08	1.24	418	8.69	1.27	Yes
Social competence	432	8.95	1.43	417	8.39	1.62	Yes
Emotional maturity	430	8.47	1.35	415	8.08	1.50	Yes
Language and cognitive development	432	8.89	1.35	418	8.18	1.73	Yes
Communication skills and general knowledge	432	8.54	2.11	418	7.73	2.38	Yes

4.4.3 Children with English as Second Language (ESL) Status

There were no significant differences found in the mean scores of children with English Second Language and children who did not have ESL status on three domains (physical health and well being, social competence and emotional maturity). The significant differences relate to *language and cognitive development* and *communications skills and general knowledge*.

Children with English as their first language had higher *language and cognitive development, communication skills and general knowledge* scores than children who with English as their second language. Table 5 shows the comparative scores for those children with and without English as a Second Language. It is important to use caution in interpretation of this table, given that this group is only 3.4% of the children in the sample.

Table 5: Effect of English as Second Language (ESL) Status on mean scores in EDI domains

Domains	ELSL			Not ESL			Statistically Significant?
	N	Mean	SD	N	Mean	SD	
Physical health and well-being	29	9.02	1.19	818	8.89	1.27	No
Social competence	29	8.77	1.54	817	8.68	1.55	No
Emotional maturity	29	8.00	1.47	813	8.30	1.43	No
Language and cognitive development	29	7.62	1.95	818	8.50	1.57	Yes
Communication skills and general knowledge	29	5.28	2.42	818	8.26	2.20	Yes

4.4.4 Children who attended French Immersion Programs

There was an association between attendance at a French Immersion program and EDI results on four domains -- *social competence, emotional maturity, language and cognitive development, and communication skills and general knowledge*. However, there were no significant differences between children who attended French immersion programs and those who did not in the domain of *physical health and well-being*. Children in French immersion programs scored higher on all the four domains compared to children without French immersion.

Using the highest and lowest scores to demonstrate differences in mean scores, children enrolled in French immersion programs recorded 9.18 compared to 8.60 for children not enrolled in French immersion for *social competency*. Similarly, on the lowest scores, children with French immersion scored 8.56 compared 8.09 to children without French immersion. Table 6 presents the mean scores for children who did and did not attend French immersion.

Table 6: Effect of French Immersion on mean scores in EDI domains

Domains	French Immersion			No French Immersion			Statistically Significant?
	N	Mean	SD	N	Mean	SD	
Physical health and well-being	132	8.84	1.18	716	8.91	1.26	No
Social competence	132	9.18	1.15	715	8.60	1.59	Yes
Emotional maturity	132	8.77	1.25	711	8.20	1.43	Yes
Language and cognitive development	132	9.06	0.96	716	8.45	1.66	Yes
Communication skills and general knowledge	132	8.56	1.82	716	8.09	2.32	Yes

4.4.5 Children with Aboriginal Status

Children with Aboriginal status (self-identified as North American Indian, First Nation, Metis, or Inuit-Census 2006 definition); scored significantly lower in all five domains when compared to children with non-Aboriginal status. It is important to use caution in interpretation of this table, given that this group is less than 5% of the children in the sample.

Table 7: Effect of Aboriginal Status on mean scores in EDI domains

Domains	Aboriginal			Non- Aboriginal			Statistically Significant?
	N	Mean	SD	N	Mean	SD	
Physical health and well-being	41	8.40	1.53	802	8.93	1.22	Yes
Social competence	41	8.18	1.64	801	8.72	1.53	Yes
Emotional maturity	41	7.81	1.60	797	8.32	1.41	Yes
Language and cognitive development	41	7.91	1.73	802	8.59	1.57	Yes
Communication skills and general knowledge	41	7.38	2.71	802	8.22	2.21	Yes

4.4.6 Children who attended an early intervention program

No significant differences in mean scores for four domains appeared between children who attended early intervention program and children who do not. Early interventions programs are defined as speech/language therapy, Head Start, a school-based program for mild/moderate or Program Unit Funded children, or if similar services were provided in the home. Only one important difference in readiness to learn at school existed between these two groups, and it is related to *communication skills and general knowledge*. Mean score comparisons for this domain rated children who attended an early intervention program with significantly lower score 7.71 compared to 8.23 for children who did not attend any early intervention program. Table 8 shows comparative mean scores for children who attended early intervention programs and children who did not.

Table 8: Effect of attending an early intervention program on mean scores in EDI domains

Domains	Early Intervention			No Early Intervention			Statistically Significant?
	N	Mean	SD	N	Mean	SD	
Physical health and well-being	103	8.76	1.44	703	8.91	1.25	No
Social competence	103	8.63	1.62	702	8.71	1.51	No
Emotional maturity	103	8.18	1.60	700	8.27	1.42	No
Language and cognitive development	103	8.55	1.85	703	8.53	1.58	No
Communication skills and general knowledge	103	7.71	2.66	703	8.23	2.20	Yes

4.4.7 Children who attended Language or Religion Classes

Language and religion classes are such things as Sunday school, or Hebrew or Spanish classes. The influence of language and/or religious classes was limited to two domains of children's readiness to learn at school: *emotional maturity* and *language development and cognitive development*. Children who attended language or religious classes have significantly higher scores than children who did not attend. For example, the mean score for children who attend language and religious classes on *emotional maturity* was 8.63 compared to 8.24 for children who did not attend language or religious classes. However, there was no significant difference between children who attended language or religious classes when it comes to *physical health and well-being, social competence, communication skills and general knowledge*. Table 9 presents the comparative scores and the differences between these two groups.

Table 9: Effect of attending language or religious classes on mean scores in EDI domains

Domains	Language/ Religion Classes			No Language/ Religion Classes			Statistically Significant?
	N	Mean	SD	N	Mean	SD	
Physical health and well-being	87	9.10	1.32	612	8.87	1.27	No
Social competence	87	8.96	1.47	612	8.67	1.52	No
Emotional maturity	86	8.63	1.42	610	8.24	1.43	Yes
Language and cognitive development	87	8.97	1.23	612	8.49	1.60	Yes
Communication skills and general knowledge	87	8.42	2.09	612	8.17	2.22	No

4.4.8 Children who attended part-time preschool

There was a link between scores of children who attended part-time preschool educational activities and the EDI domains. Part time preschool activities are programs that do not provide full day child care and do not involve an early intervention component. On all five domains children who attended part-time preschool have significantly higher scores than children who did not attend.

In terms of the highest scores, children who attend part time preschool rated 9.11 on *physical health and well-being* compared to 8.71 for children who did not attend preschool. In terms of the lowest score, children who attend preschool had significantly higher score of 8.49 compared to children without preschool (8.06) on *emotional maturity*. Table 10 depicts the comparative scores for both groups on the five domains.

Table 10: Effect of attending part-time preschool on mean scores in EDI domains

Domains	Preschool			No Preschool			Statistically Significant?
	N	Mean	SD	N	Mean	SD	
Physical health and well-being	303	9.11	1.09	370	8.78	1.37	Yes
Social competence	303	8.84	1.43	370	8.54	1.58	Yes
Emotional maturity	303	8.49	1.33	369	8.06	1.51	Yes
Language and cognitive development	303	8.86	1.45	370	8.29	1.65	Yes
Communication skills and general knowledge	303	8.60	1.98	370	7.82	2.38	Yes

4.4.9 Type of non-parental care arrangement

No significant differences were found in developmental readiness scores with respect to the types of non-parental care arrangement. Non-parental care arrangements include care at a day care centre, family day home, or in the child's own home by relatives or non-relatives. Full-time or part-time non-parental care arrangements showed no significant difference on four domains, with the exception of language *and cognitive development*. As shown in Table 11, children with full time non-parental care arrangement recorded significantly lower scores than children with part-time non-parental arrangement.

Table 11: Effect of type of non-parental care arrangement on mean scores in EDI domains

Domains	Full Time			Part Time			Statistically Significant?
	N	Mean	SD	N	Mean	SD	
Physical health and well-being	131	8.84	1.33	100	8.81	1.24	No
Social competence	131	8.55	1.61	100	8.86	1.32	No
Emotional maturity	131	8.15	1.56	100	8.29	1.61	No
Language and cognitive development	131	8.24	1.86	100	8.74	1.31	Yes
Communication skills and general knowledge	131	8.03	2.38	100	8.47	1.83	No

5. EDI Results at sub-domain level of analysis

The 5 developmental domains of the EDI contain 16 sub-domains, with the exception of Communication Skills and General Knowledge, which does not have sub-domains. The following table shows the sub-domains for each domain.

Table 12: EDI domains and sub-domains

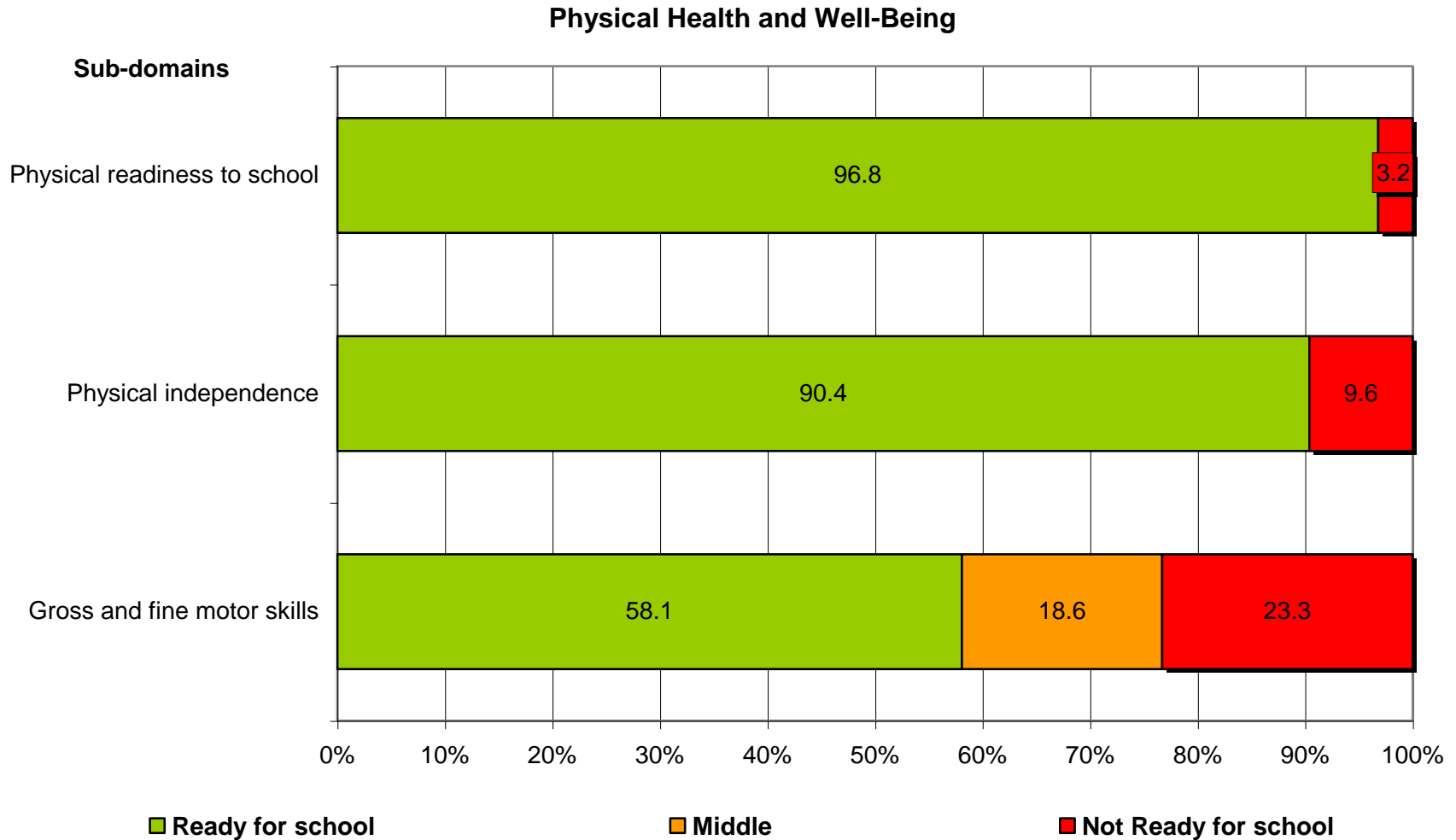
Physical Health and Well-Being	Social Competence	Emotional Maturity	Language and Cognitive Development	Communication Skills and General Knowledge
<ul style="list-style-type: none"> Physical readiness for school day Physical independence Gross and fine motor skills 	<ul style="list-style-type: none"> Overall social competence Responsibility and respect Approaches to learning Readiness to explore new things 	<ul style="list-style-type: none"> Prosocial and helping behaviour Anxious and fearful behaviour Aggressive behaviour Hyperactivity and inattention 	<ul style="list-style-type: none"> Basic literacy Interest in literacy/numeracy and memory Advanced literacy Basic literacy 	<ul style="list-style-type: none"> Communication skills and general knowledge

EDI scores in each of the domains and sub-domains were analyzed and categorized into ranges representing children who were *ready*, *middle* and *not ready* for school. In this sub-domain analysis, 'ready' means ready to take on these sorts of tasks at school, 'middle' means on track, but lower scores than the 'ready' group, and 'not ready' means unable to complete the tasks in these sub-domains. It is noteworthy to consider that some sub-domains represent skills that a child in kindergarten, based on her or his developmental age, is expected to have mastered already (e.g., physical independence) and other sub-domains represent areas of development that are still emerging (e.g., prosocial behaviour). A comparison of the percentage of children who fall in the *not ready for school category* in sub-domains identify areas of greatest concern in the population.

5.1 Physical Health and Well-Being

This domain covers physical readiness for school day, physical independence and gross and fine motor skills as sub-domains. Results for the sub-domains reveal that children showed much higher readiness when it comes to physical readiness for school day (e.g., not coming to school tired, late or hungry) (96.8%) and physical independence (e.g. coordination, hand preference) (90.4%) as compared to gross and fine motor skills (58.1%). The percentage of children in the middle range for gross and fine motor skills was 18.6%. The results show that 23.3% of children in Red Deer were not ready for school in terms of gross and fine motor skills compared to 9.6% for physical independence and 3.2% for physical readiness for school.

Figure 2. Proportion of Red Deer cohort who are ready, middle and not ready for school in the sub-domains for physical health and well being. Please note that due to the distribution of scores the Physical Readiness for the School Day and the Physical Independence sub-domains do not have a middle category.



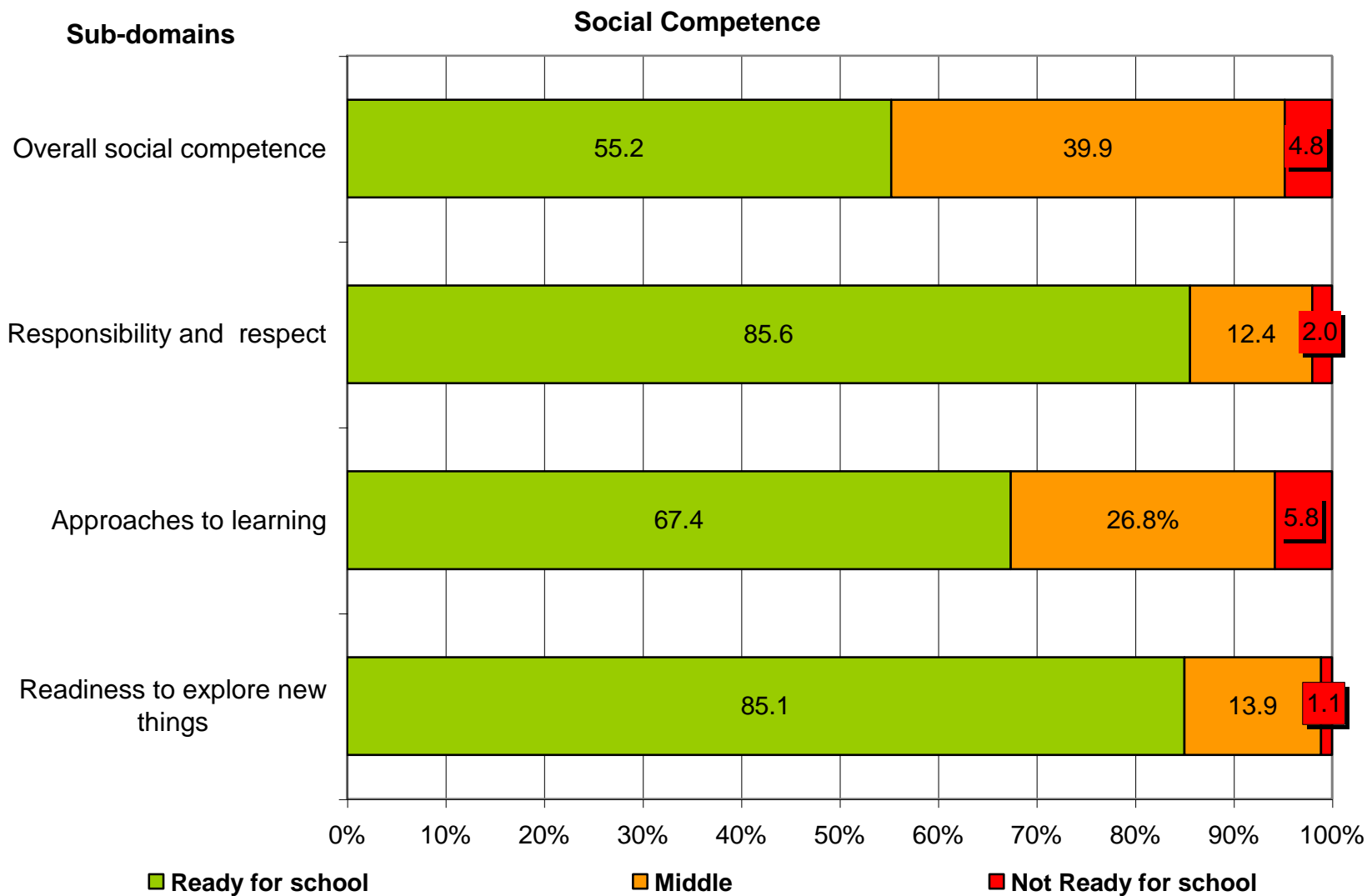
5.2 Social Competence

Dimensions of this domain capture overall social competence (e.g., ability to get along with others), responsibility and respect (e.g., follow rules), approaches to learning (e.g. follow routines, adjust to change), and readiness to explore new things (e.g., eager to explore new books, toys, games). This domain reveals much more varied results compared to those identified in the physical health and well-being domain.

Just over half (55.2%) were ready for school on *overall social competence*, 39.9% of children were in the middle, while 4.8% of children were not ready. With respect to *responsibility and respect*, a much higher percentage (85.6) were ready for school compared to 12.4% which were in the middle and 2.0% children who were not ready for school.

In terms of *approaches to learning*, 67.4% of children in Red Deer were developmentally ready for school, 26.8 were in the middle while 5.6% were not ready. Finally, on the level of *readiness to explore new things*, 85.1% of children were developmentally ready, 13.9% were in the middle and just over one percent (1.1) were not ready. Figure 3 displays the relative proportion of children that fall within the three categories for the four sub-domains on social competence.

Figure 3. Proportion of Red Deer cohort who are ready, middle and not ready for school in the sub-domains for social competence



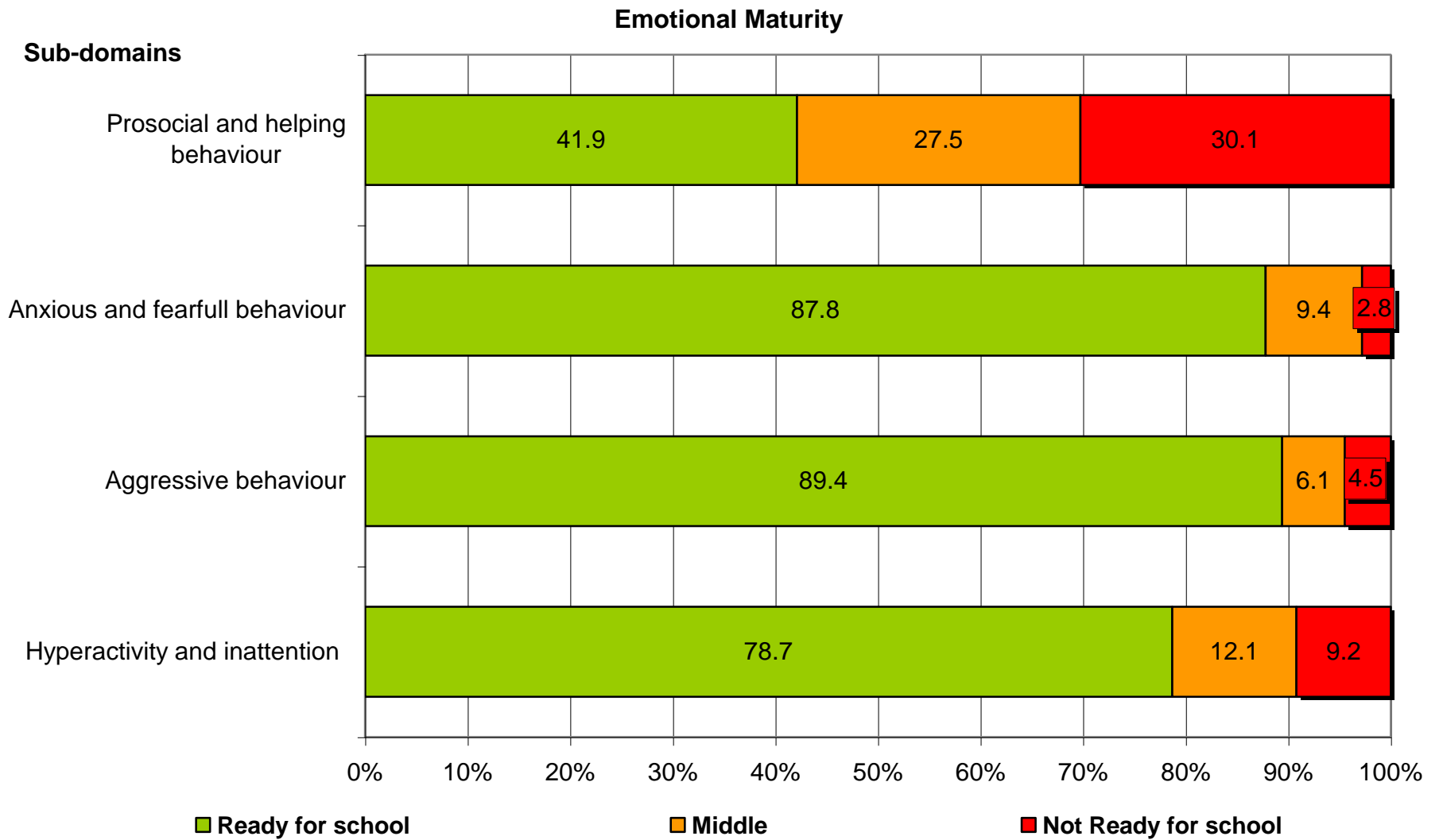
5.3 Emotional Maturity

The domain of emotional maturity is divided into four sub-domains that include *prosocial and helping behaviour*, *anxious and fearful behaviour*, *aggressive behaviour*, and *hyperactivity and inattention*. Figure 5 depicts the relative percentage of children and their level of readiness on each of the sub-domains.

The results regarding *prosocial and helping behaviour* indicate a close to even split between children that are ready, in the middle and not ready. Less than half (41.9%) were ready, 27.5% were in the middle while much higher percentage of 30.1% were not ready. The *anxious and fearful behaviour* sub-domain showed that 87.8% children in Red Deer were ready, 9.4% were in the middle and 2.8% were not ready.

Higher proportions of children (89.4%) were ready in terms of *aggressive behaviour*, 6.1% were in the middle and the rest 4.5% were not ready. Finally, in terms of *hyperactivity and inattention*, 78.7% children were ready, 12.1 were in the middle and 9.2% were not ready.

Figure 4. Proportion of Red Deer cohort who are ready, middle and not ready for school in the sub-domains for emotional maturity

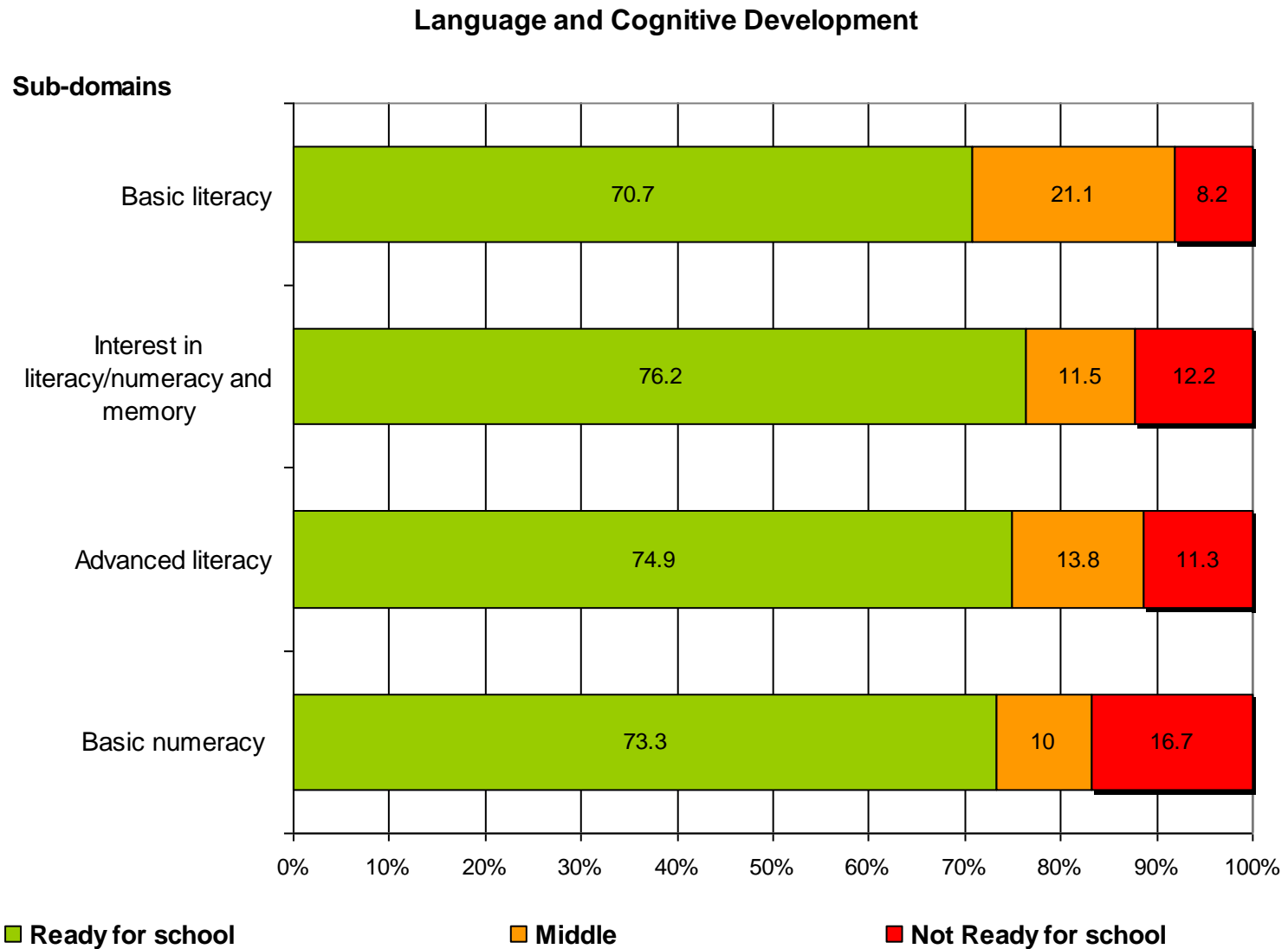


5.4 Language and Cognitive Development

The domain of language and cognitive development includes the sub categories of basic literacy, (e.g., how to handle a book, able to write own name) interest in literacy/numeracy and memory, advanced literacy, and basic numeracy (e.g., can count to 20) as presented in Figure 6. This domain did not show great variations in terms of the proportion of children's readiness levels. For example, the percentage of children who were ready on *basic literacy* constituted 70.7% of children, 21.1% were in the middle, while 8.2% were not ready. *Interest in literacy/numeracy and memory* revealed that 76.2% of Red Deer children were ready on this sub-domain compared to 11.5% that were in the middle and 12.2% who were not ready.

Advanced literacy level measures revealed that 74.9% of children in Red Deer were ready, 13.8% were in the middle and 13.3% were not ready. For *basic numeracy*, 73.3% of children were ready, 10.0% middle while the rest (16.7%) were not ready. The percentage of children who were not ready on interest in literacy/numeracy and memory and basic numeracy was higher than those in the middle.

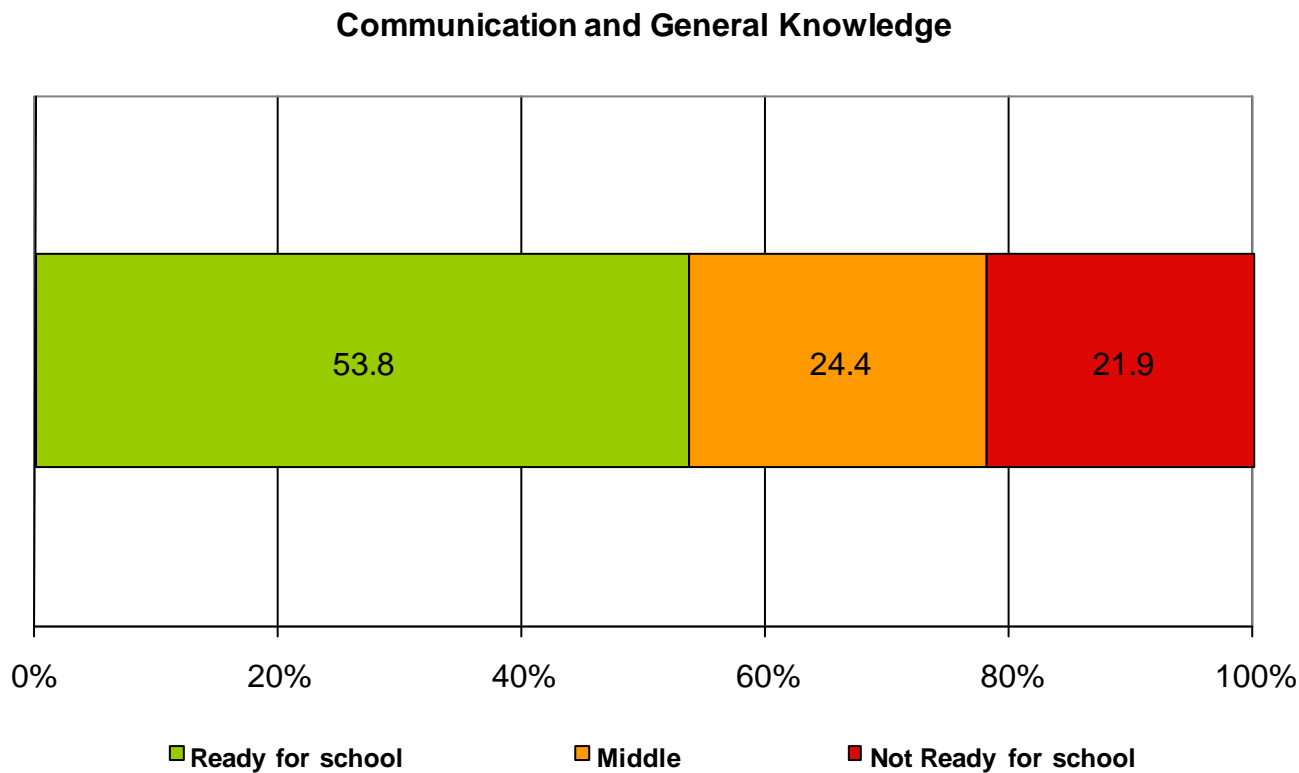
Figure 5: Proportion of Red Deer cohort who are ready, middle and not ready for school in the sub-domains for language and cognitive development



5.5 Communication skills and general knowledge

The communication skills and general knowledge is not divided by the authors of the EDI into sub-domains. Key components of communication and general knowledge include *effective communication*, ability to participate in story-telling or imaginative play, clear articulation, demonstration of adequate general knowledge, and proficiency of children in their native language. Comparative mean scores for the city as whole revealed that this domain is the most challenging for most children. Just over half of the Red Deer kindergarten children (53.8%) were ready for school, 24.4% were in the middle and 21.9% were not ready.

Figure 6. Relative percentage of children that were ready, middle and not ready in the domain of communication skills and general knowledge



6. Multiple Challenge Index

As described above there are 16 sub-domains within the five major domains of the EDI (see Table 12). Each of the sub-domains represents a relatively homogenous aspect of a child's development. If a child scores low (below the cut-off) on 9 or more of the 16 sub-domains he or she is considered to have multiple challenges. Experiencing challenges on 9 or more sub-domains would indicate concern in at least three of the major 5 developmental domains. Children with multiple challenges would have great difficulty in meeting the expectations of school. It is important to remember that these are not children who are identified as 'special needs'.

Table 13 reports that the percentage of children considered to have multiple challenges in the Red Deer sample was 2.1% compared to 3.9% in the normative sample. This means that a significantly lower percentage of Red Deer children have multiple challenges as compared to the Canadian sample.

Table: 13. Percentage of Children with Multiple Challenges

	Percentages	
	Red Deer	Normative sample
Percentage of children in Red Deer with Multiple Challenges	2.1%	3.9%

7. Conclusion

EDI results for Red Deer kindergarten children (2009) indicate that Red Deer's children are more developmentally ready for school as compared to a Canadian sample. However, 17.8% were vulnerable on at least one developmental domain, and 9.4% on at least two developmental domains. Further analysis can provide more insights into how young children are faring.