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Understanding the Early Years

Early Childhood Development in the Niagara Falls Community, Ontario

An Analysis of the Communities Survey

SP-686-03-10E

Canada

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Foreword

Early childhood is a key time for growth and development as children interact with the world around them: their families, other children, childcare providers, community programmers and more. Research shows that while what happens in early childhood does not *determine* what happens later, it does place children on developmental pathways that become increasingly difficult to alter as time passes.[1]

There is strong consensus that one of the key "enabling conditions" for healthy child development is supportive communities – communities that are safe and secure and that provide access to programs and services for families with children. In turn, the future of our communities is dependent on the healthy development of their children. Given the important role communities play in healthy child development, it is critical that policy and program decisions taken at that level be based on a sound understanding of the outcomes and needs of children in the community.

Understanding the Early Years (UEY) is a national initiative that provides communities with local information that can help them make informed decisions about the most appropriate programs and services for their young children. Information collected through the UEY initiative helps communities understand how their children are doing physically, socially and cognitively, as well as how families and the community are supporting those children. Parents, educators, community organizations and others learn about what is going well in their community and work together to make their community a better place for young children and their families.

This report for the Niagara Falls community is one of seven community reports produced for the second pilot phase of the UEY initiative. The reports describe the developmental outcomes of young children, and explore how these outcomes are influenced by demographic characteristics and by family and community factors in each of the seven communities that have participated in the initiative since 2001. The seven communities are Hampton/Sussex, New Brunswick; Montréal, Quebec; Niagara Falls, Ontario; Dixie Bloor (Mississauga), Ontario; South Eastman, Manitoba; Saskatoon, Saskatchewan; and Abbotsford, British Columbia.

The Niagara Falls report provides a profile of how young children in the community are doing, based on an analysis of two cycles of data collected in 2001 and 2005 by Statistics Canada, using the Communities Survey (adapted from the National Longitudinal Survey of Children and Youth). Specifically, the report provides findings about the developmental outcomes of kindergarten children, including outcomes relating to their physical health and well-being, cognitive skills and behaviours. The report also explores factors that may be related to these children's outcomes, by looking at changes in demographics, family processes and community factors between 2001 and 2005.

We hope that the Niagara Falls community – parents, educators, schools, businesses and community organizations – can draw useful information from this report. In better understanding how well their youngest citizens are developing and the variables that may influence that development, they can work together to improve the community for their young children.

We also hope that the community profiles in the set of seven reports provide valuable lessons about the needs and strengths of communities with different economic, social and physical characteristics, as well as about factors that enable young children to thrive.

John Connolly, Director

Partnerships Division
Community Development and Partnerships Directorate (CDPD)
Human Resources and Social Development Canada (HRSDC)

Mireille Laroche, Director

Research Division
Strategic Policy Research Directorate (SPRD)
Human Resources and Social Development Canada (HRSDC)

[1] Moore, 2005:17.

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Authors

Gong-Li Xu (Community Development and Partnerships Directorate, HRSDC)
Nina Ahmed (Strategic Policy Research Directorate, HRSDC)
Chahreddine Abbes (Strategic Policy Research Directorate, HRSDC)

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Executive Summary

This report presents survey findings from two cycles of data collection in Niagara Falls, Ontario. The study was conducted by Statistics Canada as part of the second pilot phase of the Understanding the Early Years (UEY-II) initiative, using the Communities Survey, a research tool adapted from the National Longitudinal Survey of Children and Youth (NLSCY). The first cycle of data collection took place in 2001, and the second cycle occurred in 2005.

The Communities Survey consisted of two main activities: direct assessments of kindergarten children in Niagara Falls and interviews with parents.[2] The results from the survey paint a portrait of early childhood outcomes in Niagara Falls, including outcomes related to physical health and well-being, cognitive skills and behaviour. The parental interviews offered information on a plethora of factors that may have influenced these developmental outcomes. The factors include the demographic characteristics of the children (e.g., age, gender), family income, parental education, parenting practices, childcare arrangements, literacy activities in the home, mutual support among neighbours, neighbourhood quality and safety, and use of the community's recreational, cultural and educational resources.

By analyzing the two cycles of survey data together, the report also offers some insights into changes in demographic characteristics, family processes and community factors in Niagara Falls between 2001 and 2005, and how these changes may have affected the development of kindergarten children living in the community.

To facilitate understanding of the survey results, the developmental outcomes of Niagara Falls children are compared with the averages for the seven UEY-II pilot communities and, where possible, with averages for Canada as a whole.

The remainder of this summary presents highlights from the report.

Niagara Falls Children: Developmental Outcomes

Results from the Communities Survey indicate that the vast majority of Niagara Falls kindergarten children continued to enjoy good health in 2005, although one in four had a long-term health condition.

As well, the performance of kindergarteners in cognitive skills assessments was fairly stable over the study period (2001 to 2005). Their results on receptive vocabulary skills (as measured using the Peabody Picture Vocabulary Test – Revised) were almost identical in both survey years: above the average of the UEY-II communities but slightly below the national norm. Close to one in five Niagara Falls children were considered delayed in vocabulary development based on the national standard. Across the whole UEY-II sample, this proportion was about 25%.

In the Who Am I? and Number Knowledge assessments, Niagara Falls children scored close to the average level among the UEY-II communities. In the Who Am I? assessment, 13% of children received a score signifying delayed cognitive development based on the norm of UEY-II communities; the corresponding figure in the whole UEY-II sample was 12%. In the Number Knowledge assessment, considerably more Niagara Falls children reached the 6-year-old equivalent level of number knowledge in 2005 than in 2001 (68% vs. 57%).

Niagara Falls kindergarteners showed some improvement between 2001 and 2005 on all measures of emotional development and social behaviours, except in the area of physical aggression. For example, in 2001, one in five showed signs of a short attention span; this proportion had declined considerably by 2005, when only 7% exhibited attention problems.

The survey results also show that the percentages of Niagara Falls children showing signs of emotional problems and indirectly aggressive behaviours dropped slightly between 2001 and 2005. However, the percentage with aggression problems went up slightly during the period.

[2] Each interview was conducted with the person deemed most knowledgeable about the child (PMK). About 85% of PMK were mothers.

Overall, compared with UEY-II averages, Niagara Falls had a lower proportion of children displaying problems in the four behavioural domains assessed: emotional development, aggressive behaviours, indirectly aggressive behaviours and hyperactivity.

Niagara Falls Children: Demographic Characteristics

This study explored a variety of demographic factors, family resource factors, parenting practices and physical and socio-economic factors that might affect children's developmental outcomes. These include the children's gender, household income level, parents' level of education, parents' employment status and family structure. In addition, children's experiences in the home and community, such as the relationships with parents, literacy activities in the home and opportunities to participate in group activities in the community, were examined for linkages with early developmental outcomes.

The results show that Niagara Falls recorded some demographic changes among its kindergartener population. While the gender ratio remained unchanged between 2001 and 2005 (boys accounted for slightly more than half of Niagara Falls kindergarten children), the percentage of children whose first language(s) did not include English or French almost doubled, up from 5% in 2001 to about 10% in 2005.

Among children whose first language(s) did not include English or French, 60% were considered delayed in vocabulary development; among children whose mother tongue was English or French, the proportion receiving low vocabulary scores was only 13%.

Niagara Falls Families: Characteristics

Between 2001 and 2005, the average household income of Niagara Falls families with young children increased by almost $4,000. Yet the proportion of kindergarteners living in low-income families remained almost unchanged, at about one in five. By comparison, across the UEY-II communities, the proportion of children living below the low-income cut-off increased by one third between 2001 and 2005, reaching 29%.

Results from this study show a link between the family income of Niagara Falls children, their cognitive outcomes and their participation in organized sports and in art and other recreational activities that include instruction. For example, children from high-income families were almost three times as likely to participate in coached sports as children from low-income families.

Parents' level of education has been steadily increasing in Niagara Falls: as of 2005, 45% of those interviewed had a college diploma or university degree. At the same time, the proportion who had not completed secondary education declined from 12% in 2001 to 8% in 2005. While the study found that children whose parents had not completed secondary education were more prone to delayed vocabulary development, some of these children did develop advanced vocabulary skills. The majority of Niagara Falls kindergarteners (more than 75%) had normal or advanced vocabulary skills at age 5.

Few changes took place in the labour market participation of young children's parents in Niagara Falls between 2001 and 2005. Parents interviewed in Niagara Falls registered higher employment rates than the UEY-II average (73% vs. 68%). As well, Niagara Falls children were more likely to have parents working outside the home (86% vs. 82%).

Parental employment was significantly related to Niagara Falls children's cognitive and behavioural development: compared with other children, considerably more children in no-earner families showed delayed vocabulary development and signs of aggressiveness and hyperactivity.

In 2005, 74% of Niagara Falls children lived in two-parent families, up from 71% in 2001. About 81% lived with one or more siblings in the home. The study found that children in single-parent families were more likely than children in two-parent families to have delayed vocabulary development and exhibit problem behaviours.

Niagara Falls Families: Family Processes

The vast majority of Niagara Falls children (about 91%) lived in families that functioned cohesively, based on UEY-II norms. Results from the study indicate that their developmental outcomes – including in vocabulary skills, emotional health and social behaviours – were significantly associated with how family members worked together to solve problems.

Compared with the average across the UEY-II communities, Niagara Falls parents performed better on positive and effective parenting measures. However, their performance was close to the average among the UEY-II communities on consistent and rational parenting measures. The data show that positive parenting tended to be related to children's emotional and behavioural development, whereas consistent parenting was related to most of the outcomes explored in this study: vocabulary skills, levels of anxiety, and aggressive and indirectly aggressive behaviours.

The vast majority of Niagara Falls parents were actively engaged in providing a stimulating home environment for their children. About 9 in 10 – a higher level of engagement than the UEY-II average – read to their children, taught them numbers and helped them learn new words, either daily or at least a few times a week.

Niagara Falls Childcare Arrangements

The percentage of Niagara Falls children in non-parental childcare increased from 45% in 2001 to 55% in 2005. The most common types of childcare arrangement were care by a relative either at home or outside the home, followed by non-relative care provided either at home or elsewhere. Daycare centres were the third most popular form of care arrangement, attended by 23% of Niagara Falls children who needed non-parental childcare in 2005.

Niagara Falls Community: Neighbourhood Qualities

The majority of Niagara Falls parents (more than 80%) believed their neighbourhoods were a great place to bring up children, giving them high ratings on safety and cleanliness, and on the quality of schools and nursery schools. They also appreciated the prevalence of families with young children, and agreed that neighbours supported one another in various ways. However, about one in four parents did not think that neighbours cooperated to solve problems.

The study confirmed that neighbourhood quality was associated with children's vocabulary skills, emotional development and social behaviours: children living in high- quality neighbourhoods were much less vulnerable in these areas of development than other groups. The study also found that neighbourhood social support was strongly associated with the cognitive, emotional and behavioural outcomes of Niagara Falls children.

Niagara Falls Community: Resources for Young Children

More than 75% of Niagara Falls parents reported that educational resources were located nearby, and about 60% said the same regarding recreational and cultural facilities. This finding indicates that the children of this community had average access to educational resources among the UEY-II communities, while their access to cultural and recreational resources was slightly above average.

Despite the perceived availability of resources, fewer than one in five children in Niagara Falls used educational programs and services in the community either weekly or monthly. Book clubs and reading programs were the most popular educational resources apart from libraries. Many more children took advantage of cultural resources such as museums, theatres, musical performances, sports events and movies. However, most used these resources only a few times a year. Recreational facilities recorded the highest use rates among the three types of community resources: about 70% of Niagara Falls children visited parks or play spaces at least weekly. Pools, both indoor and outdoor facilities, were the next most popular venues (used by about 46% of children weekly), followed by recreational and community centres.

The data indicate that rates of participation in organized and unorganized group activities were fairly stable between 2001 and 2005. Considerably more Niagara Falls children participated in unorganized than organized sports (69% vs. 48%). About one third were enrolled in dance, gymnastics or martial arts classes. Even fewer (16%) took weekly music or art lessons.

A substantial proportion of children did not use educational, cultural and recreational facilities at all. The top three reasons, reported by parents in both 2001 and 2005, were lack of time, program costs and inconvenient program scheduling. Many parents (about 30%) mentioned that they were unaware of programs or unable to access programs because they were only for older children or were oversubscribed.

1. Introduction

The nurturing and stimulation that children receive during their first 5 years can affect the rest of their lives. Research shows that neighbourhoods and communities have a major impact on the quality of this nurturing and stimulation, influencing the ability of parents and schools to provide the conditions that will result in the best developmental outcomes for children.

Understanding the Early Years (UEY) is a national initiative that (a) gathers information about the influence of family, neighbourhood and community factors on children's early development and (b) provides this information to families and community organizations so that they can use it in monitoring children's development and creating effective community-based responses. The goal is to help families and their communities make informed decisions about the best and most appropriate policies, programs and services for young children.

The pilot phase of the UEY initiative (UEY-I) was launched with a study in York region (now the North Quadrant of Toronto, Ontario) in 1999. Then, in 2000–2001, five communities – Prince Albert, Saskatchewan; Winnipeg (School District No. 1), Manitoba; Prince Edward Island; and Southwest Newfoundland – joined UEY-I. UEY-I was followed by a second pilot phase (UEY-II), when another seven communities became pilot sites in 2001-2002: Hampton/Sussex, New Brunswick; Montréal, Quebec; Dixie Bloor (Mississauga), Ontario; Niagara Falls, Ontario; South Eastman, Manitoba; Saskatoon, Saskatchewan; and Abbotsford, British Columbia.

This report presents results from the Niagara Falls pilot site. The findings – based on data collected by Statistics Canada in 2001 and 2005 using the Communities Survey – focus on the development of kindergarten children in Niagara Falls in major domains of child development, including physical health and well-being, cognitive skills and behaviour. The report also explores factors that may have influenced developmental outcomes, by looking at changes that took place between 2001 and 2005 in demographic characteristics, family processes and community factors.

The remainder of this chapter offers brief descriptions of Niagara Falls as a milieu for the development of young children, the local UEY project sponsor and project participants, and research activities implemented in the community as part of the overall UEY initiative.

1.1 Niagara Falls Community

Picturesque Niagara Falls is located in the Niagara region of southern Ontario. Spanning 212 km^2 of rural and urban areas, it has become a significant tourist destination with high levels of seasonal employment. The population in 2001 was 78,815, of which 6,025 were children under 6 years of age. There are six neighbourhoods and 28 elementary schools.

Niagara Falls is regarded as a safe and stable community with high levels of social support. Nevertheless, it faces a number of challenges related to healthy childhood development. There is a high percentage of single-parent families, and many of these are of medium to low socio-economic status. Approximately 83% of single-parent households are headed by women. Additionally, a large majority of the population aged 15 years and over lacks a high school diploma and relies on government social assistance programs. There is a need for additional and more dispersed social support resources: current resources tend to be concentrated in a few neighbourhoods, only a small percentage offer services in a language other than English, and fewer than half provide services for children with special needs.

1.2 Understanding the Early Years Pilot Project in Niagara Falls

In 2001, Niagara Falls became a UEY pilot site to learn about and improve child development in the community. The local UEY project is sponsored by the Early Childhood Community Development Centre, which seeks to enhance the quality, range and affordability of childcare services in Niagara Falls and strengthen the area's childcare and early learning industry. The sponsor is supported by a community coalition, Early Years Niagara, an advisory group whose membership includes school boards, post-secondary institutions, not-for-profit organizations, community groups and regional government departments.

Research related to the UEY project in Niagara Falls consisted of the following activities:

Teacher Assessment of Children's Readiness to Learn at School – Kindergarten teachers in Niagara Falls used the Early Development Instrument (EDI) questionnaire, developed by McMaster University, to assess their pupils' readiness to learn prior to Grade 1. The instrument measures the five domains of readiness to learn: physical health and well-being, social competence, emotional maturity, language and cognitive development, communication skills and general knowledge. All the children in their second year of kindergarten in Niagara Falls elementary schools were assessed, and the results served as an indicator of how Niagara Falls children were supported and prepared during the preschool years for learning and entry into school.

Communities Survey – Statistics Canada conducted this survey to gather information on a representative sample of second-year kindergarten children in Niagara Falls elementary schools. Data were collected through interviews with the person most knowledgeable about the child, usually a parent or guardian, and three direct assessment activities with the child. The results were analyzed to determine any relationships between children's development and various family and community factors that could influence that development. (For more information, see Chapter 2.)

Community Mapping Study – This study, carried out by the Niagara Falls community itself, consisted of the following three components: (1) an analysis of census data on distributions of children aged 0 to 6 years in relation to the socio-economic characteristics of the community (e.g., cultural, ethnic and linguistic diversity; household income; parents' employment and level of education; and level of criminal activity in the community); (2) development of an inventory of local programs and services available for families with young children; and (3) a study to examine in detail the infrastructure and physical environment, risk factors and assets of the neighbourhoods of Niagara Falls. The results of this study were mapped to illustrate how community and socio-economic resources, as well as other factors, are linked to children's development.

The EDI and Communities Survey entailed two cycles of data collection, the first on the 2001 cohort of kindergarten children and the second on the 2005 cohort. Both cycles of data collection had the same objectives. However, the fact that there were two cycles enabled researchers to assess any changes in children's readiness to learn and how these might have been influenced by changes in the community's characteristics (including demographic and family characteristics) between 2001 and 2005.

In addition to its research activities, the UEY project in Niagara Falls has helped raise awareness of programs, services and resources being developed to improve children's outcomes in local early learning and childcare programs and schools. As well, it has highlighted areas of focus for the professional development of educators and early learning and childcare professionals, and it has enhanced community knowledge regarding child development in the early years. In fall 2003, the Niagara Falls UEY project partnered with the Early Childhood Community Development Centre and the Interprofessional Committee on Child Abuse to offer a conference on the community's role in preventing bullying. More information on the Niagara Falls UEY project can be found at http://www.uey.eccdc.org/.

2. Background to the Communities Survey

This chapter presents a summary of theories on early childhood development and offers a brief description of the Communities Survey and its implementation in Niagara Falls. Its purpose is to provide background that can help in understanding what the study is about as well as the analysis of data reported in the following chapters.

2.1 Early Childhood Development: Main Theoretical Perspectives

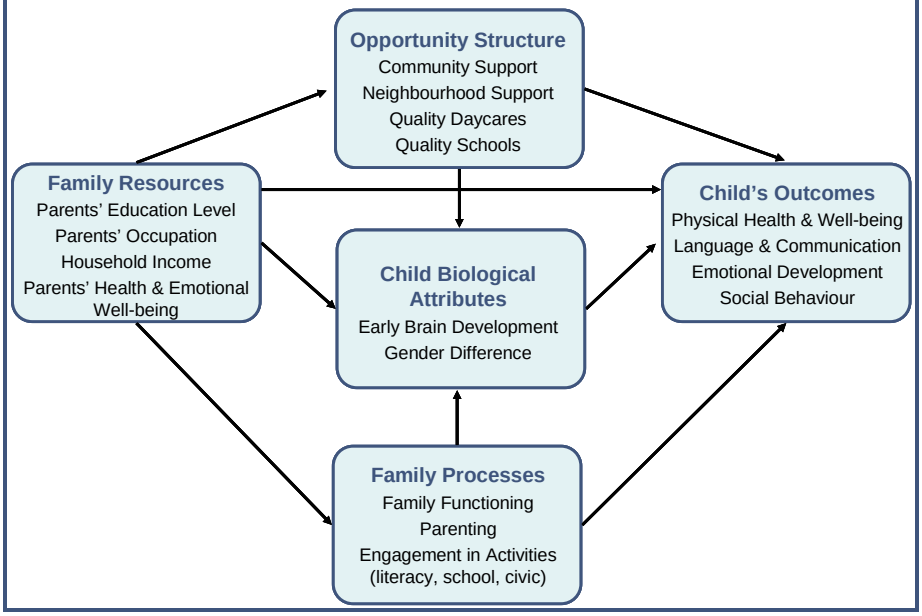
Research on early childhood development has been influenced primarily by three theoretical approaches (Willms 2002). The first approach is represented by "investment theory," an economic theory that presumes that children receive an endowment from their parents. This endowment includes biological attributes as well as their parents' norms, values, preferences, wealth and access to resources. Parents invest time and money in their children, mainly through expenditures on education and health care. Many studies of childhood outcomes are based on this theory.

The second set of theories suggests that childhood outcomes result from family processes and parenting practices. Children are less likely to have behavioural problems or poor cognitive development when their parents are supportive, responsive and affectionate. On the other hand, child development is negatively affected when parents are less engaged in activities beneficial to emotional and intellectual development, or are experiencing marital breakdown, as well as when families function less well as a cohesive unit.

The third group of theories stresses the importance of social context in shaping, constraining and redirecting the actions of individuals (Coleman 1988). This set of theories has sparked a number of recent research projects linking child health and development to community and neighbourhood characteristics. According to this perspective, parents' choices are influenced by the norms of their immediate community and the social supports available to them. For example, the amount of time parents spend with their children is shaped by the culture of the neighbourhood, friendship networks and the types of support provided in the community. Parents' ability to provide a nurturing environment for their children can be either helped or hindered by the neighbourhood and wider community (Willms 2003). For example, the quality and safety of the neighbourhood and of its daycare centres and schools, as well as other social factors such as a strong network of supportive friends and colleagues, play an important role in a child's development.

Theories that emphasize the roles of parenting, family functioning, neighbourhood and community have provided insights into the links between family socio-economic resources and children's developmental outcomes. More important, these theories have shed light on the changes that are possible through the actions of families, the support of community and volunteer agencies, and informed social policy at the local, provincial and national levels (Willms 2003).

Figure 2.1
Social ecological model of development (modified from Willms, D. 2000:43)



However, many studies on childhood development (summarized in Appendix A) indicate that all the factors identified in these theories play a role in a child's developmental outcomes. Thus, a new approach has emerged – the social ecological model of development – that views childhood development as the product of a combination of factors: individual characteristics, the family, the neighbourhood and the larger community (see Figure 2.1). This approach has gained broad acceptance in recent years. Under it, no single factor is predominant in determining a child's developmental outcomes. Rather, all factors interact in complex ways to influence outcomes.

According to this model, studies of developmental outcomes need to include many individual, family and community factors in order to understand how these factors combine to affect a child's development. Research under the Understanding the Early Years (UEY) initiative, particularly the Communities Survey, has been heavily influenced by this social ecological thinking. The basic concepts have guided not only what types of data were collected at the UEY pilot sites but also how the data were analyzed.

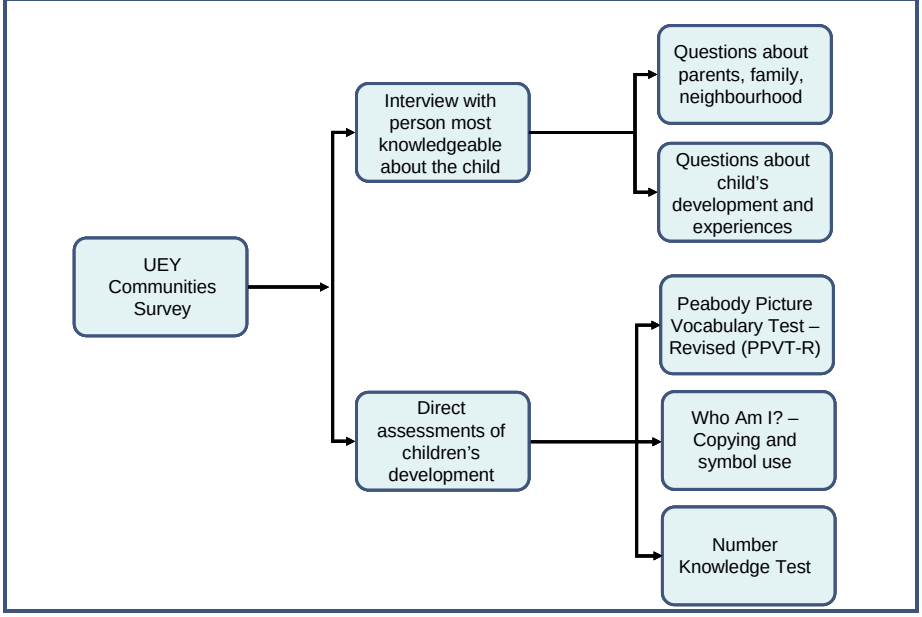
2.2 Development and Content of the Communities Survey

The Communities Survey was developed by Human Resources and Social Development Canada and Statistics Canada for the UEY initiative. To ensure that the survey adequately addressed all relevant factors affecting early childhood development, the design phase included a multidisciplinary consultation. The selection of specific priorities and survey questions was then carried out with input and advice from the expert advisory group of the National Longitudinal Survey of Children and Youth (NLSCY), a group consisting of researchers in childhood development and other social sciences, representatives from other federal departments, and representatives from the provinces and territories responsible for childhood development programs.

The Communities Survey takes an ecological or holistic approach to understanding early childhood development and is designed to capture the diversity and dynamics of the factors that may affect children's development. Thus, it measures a set of developmental outcomes for children at 5 years of age, before they enter Grade 1, including those related to physical health, cognitive skills, emotional development and social behaviours. At the same time, it collects information on a broad range of factors that can explain these outcomes. This includes information about the child, the child's parent(s), family and neighbourhood characteristics, and the child's family life and community activity experiences. The Communities Survey employs the instruments used in the NLSCY for the cohort of 5-year-old children, enhanced with

supplementary questions on childcare arrangements and use of community resources. Figure 2.2 provides an overview of the instruments used in the Communities Survey.

Figure 2.2
Overview of the Communities Survey



The Communities Survey consists of two parts: an interview with the person most knowledgeable about the child (PMK), usually the child's mother, and direct assessment activities with the participating child. The principal instrument used for interviews with the PMK is a questionnaire that contains two sections: a Child Section, where the PMK answers questions about the child; and an Adult Section, where the PMK provides information about the PMK and PMK's spouse or partner (where applicable), family structure and neighbourhood. The topics and topic contents are summarized in Table 2.1.

Table 2.1 Topics and topic contents in the PMK questionnaire	
Child Section	
Topics	**Content**
Health	General health, injuries, limitations, chronic conditions, use of health services
Behaviour	Positive behaviours such as perseverance and independence as well as negative ones such as hyperactivity and physical aggression
Activities	Participation in non-school activities and interaction with peers
Literacy	Exposure to books and interest in participating in reading and learning activities with parents
Parenting	Methods parents use to control, discipline, encourage and respond to the needs of the child
Family history	Child's family arrangements (e.g., parents' marital status and, if parents are separated/divorced, age of the child at the time)
Childcare	Types of childcare and amount of time spent in childcare
Communication	Ability to understand an oral message and to pass the content on to someone else, as well as the general ability to communicate verbally
Community resources	Availability and use of educational and recreational resources in the community (e.g., museums, community centres) and reasons for not using these resources where available (e.g., inaccessibility or cost)
Socio-demographic characteristics	Ethnicity, country of origin, Aboriginal status, first languages, languages used at home
Adult Section	
Health	General health, physical limitations, chronic conditions, mental health (e.g., depression syndrome)
Education	Highest level of education attained
Income	Household income, sources of income, adequacy of income
Labour market participation	Employment status, occupation, industrial sector, work hours and shifts; if applicable, length of unemployment and reasons for unemployment
Family functioning	Quality of family relationships as indicated by the family's ability to communicate, make decisions and solve problems as a group, discuss feelings and concerns, and feel accepted for who they are
Neighbourhood safety	Perception of the neighbourhood as a safe or dangerous place to raise children, perception of social cohesion or neighbourliness
Social support	Support from friends, family members and members of the community
Socio-demographic characteristics	Immigration, ethnic background, languages spoken by household members, religious affiliation

The second component of the Communities Survey includes three assessment activities that are undertaken with each participating child:

- the Peabody Picture Vocabulary Test – Revised (PPVT-R); French-speaking children received the French equivalent of PPVT-R, the Échelle de vocabulaire en images Peabody, version révisée (EVIP-R);
- a shortened version of the Who Am I? instrument; and
- the Number Knowledge Test.

These assessment activities are summarized below.

Peabody Picture Vocabulary Test – Revised

The PPVT-R is used to assess a child's level of receptive (or hearing) vocabulary, which can predict achievement in school. The child is given a card bearing four images. The assessor then reads out a word from the test, and the child has to point to the image on the card that the child believes represents that word. Pictures and words become progressively more difficult as the test continues. The PPVT-R was developed by Lloyd and Leota Dunn at the University of Hawaii and is widely used as a measure of receptive vocabulary for any age group (2.5 years to adult).

Who Am I?

The Who Am I? instrument is administered to children upon entry into school. It assesses the cognitive processes that underlie the acquisition of early literacy and numeracy skills. The assessment consists of three scales: symbols (circle, cross, square, triangle and diamond), copying (printing name, letters, numbers, words and sentences) and drawing (a picture of self). However, because of time constraints, the drawing task was removed from the Communities Survey. The child is given a booklet containing various tasks. The child completes as many tasks as he or she can while the assessor turns the pages and gives instructions. The instrument was developed by Molly de Lemos and colleagues at the Australian Council for Educational Research and can be used with children from 3 to 7 years of age.

Number Knowledge Test

This test assesses a child's understanding of the concept of quantity and the system of whole numbers. Children are asked to demonstrate their understanding of quantity (more vs. less), their ability to count objects, their understanding of number sequence and their ability to do simple arithmetic. Children who start school with this intuitive knowledge generally do well in math. Children who do not have this understanding, or who are working in a language that is not their mother tongue, often have difficulty mastering basic arithmetic and demonstrating number sense. The assessment was developed by Robbie Case at the Ontario Institute for Studies in Education, University of Toronto. It can be used with children from about 3.5 to 10.5 years of age. Dr. Case and his colleague Yukari Okamoto at the University of California developed a shortened version of this assessment for the National Longitudinal Survey of Children and Youth. The test is administered orally, and the questions are asked until the child fails to correctly answer more than half the problems in a level.

2.3 How the Communities Survey Was Conducted in Niagara Falls

As in other UEY-II pilot communities, two cycles of Communities Survey data collection took place, with the first cycle in 2001 and the second in 2005. Both data collection cycles were completed using a sample of children who were of kindergarten age at the time, and both followed similar procedures. The data collection process used in 2005 is described below as an illustration.

The target population comprised all children enrolled in the second year of kindergarten at Niagara Falls schools in the fall of 2004 and who were still attending a school within the community in the winter of 2005 (during the household data collection period). This population was used to select a representative sample of children (and their parents) to participate in the survey. The achieved sample in 2005 was 531 children, representing 665 second-year kindergarteners. (The sample size in 2001 was 342, representing 841 kindergarteners.)

The survey was administered between February and June 2005. Household data were collected in February, March and April by Statistics Canada staff who contacted the parents and conducted interviews by telephone. At the time of the telephone interview, the initial household contact was asked to identify who in the household was the person most knowledgeable about the child. The PMK provided information about the selected child as well as socio-demographic information about the PMK and his or her spouse/partner, if applicable.

The vast majority of PMK were the children's mothers, as shown in the following breakdown of the relationship between PMK and children (averages across the seven UEY-II pilot communities in 2005):[3]

- For 87.9% of the children, the PMK was the mother (86.0% the biological mother and 1.9% the stepmother, adoptive mother or foster mother).
- For 10.8% of the children, the PMK was the father (10.5% the biological father and 0.3% the stepfather, adoptive father or foster father).
- For 1.3% of the children, the PMK was not their parent.

In May and June, Statistics Canada interviewers went into the schools to administer the direct assessment portion of the survey to children whose parents had provided written or verbal consent. Children who were not able to communicate in English or French were not assessed.

[3] Special Surveys Division, Statistics Canada, 2005, *Communities Survey, 2005- User's Guide*. (http://www.statcan.ca/english/sdds/document/5067_D2_T1_V2_E.pdf)

3. Developmental Outcomes of Niagara Falls Young Children – Findings from the Communities Survey

This chapter describes the developmental outcomes of kindergarten children in Niagara Falls, focusing on their physical health, cognitive skills, and emotional and behavioural development. The findings are based on data collected from representative samples of children and persons most knowledgeable about the children (PMK) who participated in the Communities Survey in 2001 and 2005. The children underwent three direct assessments designed to evaluate their cognitive skills, while PMK (mostly mothers) were interviewed for their opinions on their children's health, emotional development and behaviour. Data collection was carried out by Statistics Canada. Where appropriate, results for Niagara Falls are compared with averages across the seven communities participating in the second pilot phase of the Understanding the Early Years (UEY-II) initiative.

Taken together, the data on these 5-year-old children provide valuable information about their abilities, attitudes and behaviours as they begin formal schooling. These attributes are important for early school achievement. More significantly, by reflecting how children in Niagara Falls have been faring and how they are supported in their early years, the data provide important insights for the Niagara Falls community – parents, educators and other community members – that can help in developing better programs and services to meet the needs of the community's children.

3.1 Physical Health

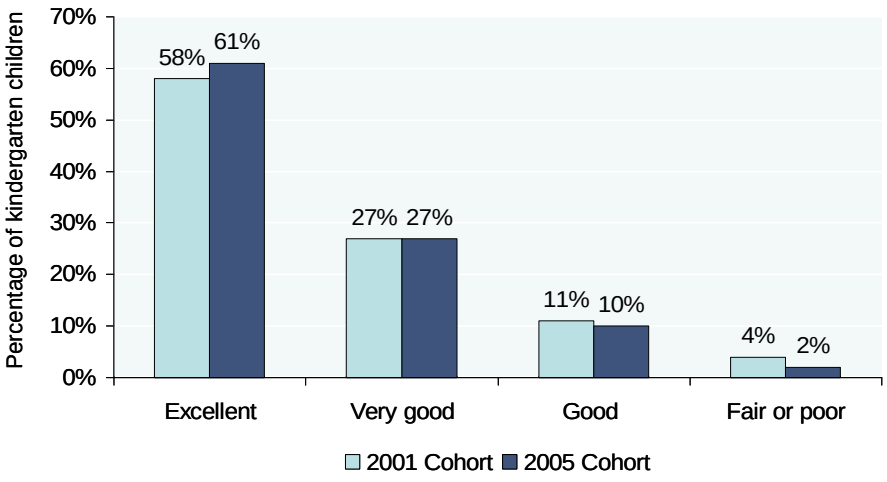
Table 3.1 displays the mean values of three common measures of physical development – height, weight and birth weight of children – estimated by PMK during the interviews. The table also shows the percentage of children suffering from at least one long-term health condition, such as allergy, bronchitis, mental handicap or epilepsy, as reported by PMK. The average values of these measures for the combined data of the seven UEY-II communities are also provided for comparative purposes.

Table 3.1
Average height, weight and birth weight, and presence of chronic conditions among kindergarten children, Niagara Falls and UEY-II communities (2001 and 2005)

	Niagara Falls		UEY-II communities	
	2001	**2005**	**2001**	**2005**
Height (mean, cm)	110.8	110.0	110.6	110.0
Weight (mean, kg)	21.2	21.2	21.1	21.1
Birth weight (mean, kg)	3.4	3.5	3.4	3.4
Presence of chronic condition (%)	24.3	26.2	21.9	23.7

PMK were also asked to comment on the general physical health of their children by rating it as "excellent," "very good," "good," "fair" or "poor."

Figure 3.1
General health of kindergarten children, Niagara Falls
(percentages, 2001 and 2005)



As shown in Figure 3.1, more than 85% of PMK – in both 2001 and 2005 – rated their children as being in excellent or very good health. Fewer than 4% of PMK were concerned about their children's health, ranking their condition as fair or poor. One in four children were reported to suffer from at least one long-term health condition (see Table 3.1).

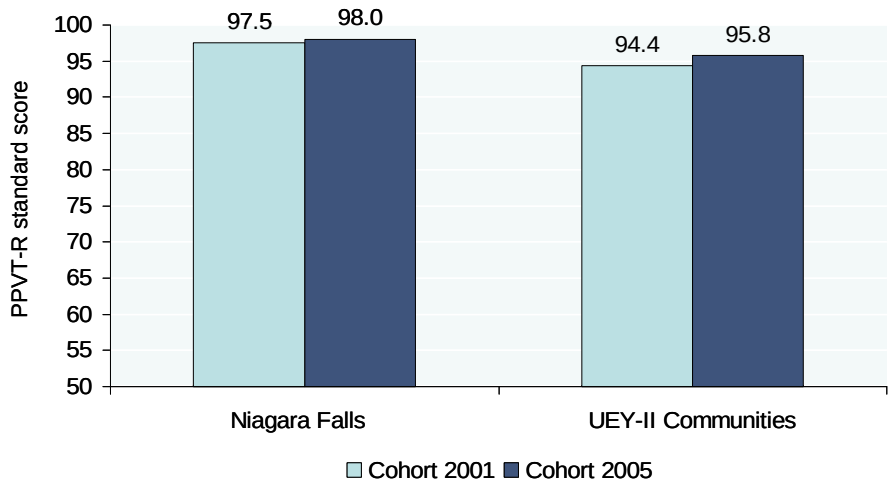
3.2 Cognitive Outcomes

As noted in Chapter 2, the Communities Survey uses three direct assessments to assess kindergarteners' cognitive skills: the Peabody Picture Vocabulary Test – Revised (PPVT-R), Who Am I? and the Number Knowledge Test.

3.2.1 Peabody Picture Vocabulary Test – Revised

The PPVT-R assesses children's level of receptive (or hearing) vocabulary in English (a French version is available to assess the level in that language). The standardized scores on this test range from 40 to 160, with 100 being the national average – a norm established based on results from the National Longitudinal Survey of Children and Youth (NLSCY). Figure 3.2 shows that the average score of Niagara Falls kindergarteners on receptive vocabulary was about 98.0 in 2005, a score close to the 2001 result of 97.5. In both surveys, the Niagara Falls mean was significantly higher than the mean across the seven UEY-II communities but slightly below the national norm.

Figure 3.2
Kindergarten children's receptive vocabulary skills scores, assessed using the PPVT-R, Niagara Falls and UEY-II communities (means, 2001 and 2005)



Means, however, may represent only how well an average child performs or most children perform on a test. Some children may perform much better than the average, while others may perform much worse. To identify the proportion of children who are potentially at risk in this developmental domain, we separated them into three groups based on their PPVT-R scores. Thus, we classified children who received a standard PPVT-R score below 85 as being "delayed" in vocabulary development, children with scores above 115 as being "advanced," and children scoring between 85 and 115 as being "average." This classification is based on the NLSCY results, which indicate that about 70% of 5-year-old Canadian children score between 85 and 115 (i.e., within one standard deviation of the national average, with the standard deviation being 15), 15% score below 85 and the other 15% score higher than 115.[4] If a Niagara Falls child scored under 85 on the PPVT-R, that child was deemed to be weaker in vocabulary skills than the majority (85%) of Canadian children of the same age.

[4] This assumes the distribution of PPVT-R scores for the NLSCY national sample is a normal distribution.

Figure 3.3
Kindergarten children classified as being delayed, average or advanced in their receptive vocabulary skills, assessed using the PPVT-R, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)

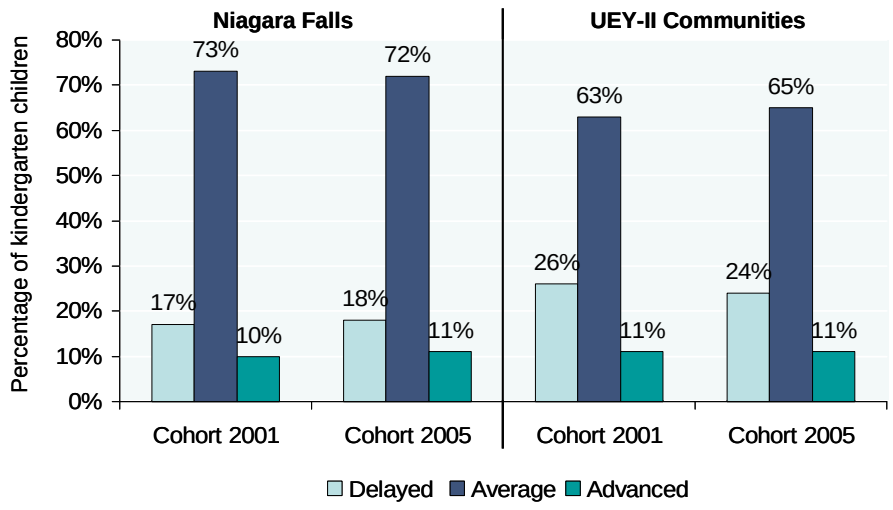


Figure 3.3 presents the results based on this classification of children's vocabulary development. It shows that in both 2001 and 2005, about 83% of Niagara Falls children were at the average or advanced level in vocabulary development. Fewer than 20% received a low PPVT-R score, which signifies delayed vocabulary development. By comparison, about a quarter of children assessed across the UEY-II communities were classified as being delayed in vocabulary development in both 2001 and 2005.

3.2.2 Who Am I?

Who Am I? is a developmental assessment designed to assess children's ability to conceptualize and reconstruct a geometric shape, and to understand and use conventional symbols, such as numbers, letters and words. Because the tasks are not particularly language-dependent, the Who Am I? tool can be used to assess the development of children whose knowledge of English or French is limited.

Children's performance on the Who Am I? assessment is scored from 10 to 40. To estimate the proportion of Niagara Falls children performing less well than the majority of children in the UEY-II communities, we established a threshold based on the mean score of children across the UEY-II communities. Data from the 2005 Communities Survey[5] indicate that the UEY-II average score was 32.6, with a standard deviation of 3.9. This implies that, if the scores were distributed normally, about 70% of kindergarteners in the UEY-II communities would be expected to score between 28.7 and 36.5. We thus classified children scoring below 28.7 as being "delayed" in copying skills and symbol use, and children scoring higher than 36.5 as being "advanced" in copying skills and symbol use. Children scoring below 28.7 were considered less developed in copying skills and symbol use than the majority (85%) of children across the UEY-II communities.

[5] Due to the large number of missing values in the Who Am I? results from 2001, only the results from the 2005 data collection cycle are discussed in this report.

Figure 3.4
Kindergarten children's developmental scores, assessed using Who Am I?, Niagara Falls and UEY-II communities (means, 2005)

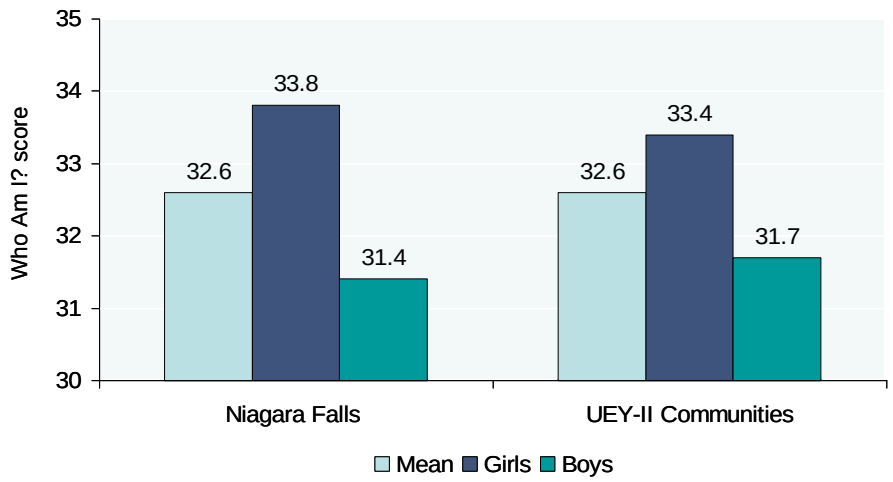


Figure 3.4 shows that the mean score of Niagara Falls children on the 2005 Who Am I? assessment was 32.6 out of the total of 40, a result almost equal to the average of the UEY-II communities. However, the results portrayed in Figure 3.5 indicate that 15% of Niagara Falls children were at the advanced level of copying skills and symbol use, or above the average across the UEY-II communities. As well, 13% of Niagara Falls children were considered delayed in copying skills and symbol use, compared with 12% across the UEY-II communities.

Figure 3.5
Kindergarten children classified as being delayed, average or advanced in development, assessed using Who Am I?, Niagara Falls and UEY-II communities (percentages, 2005)

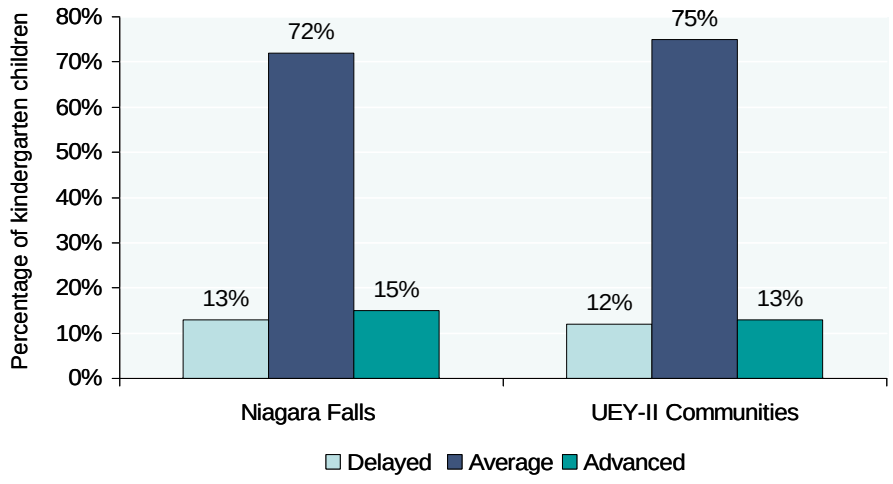
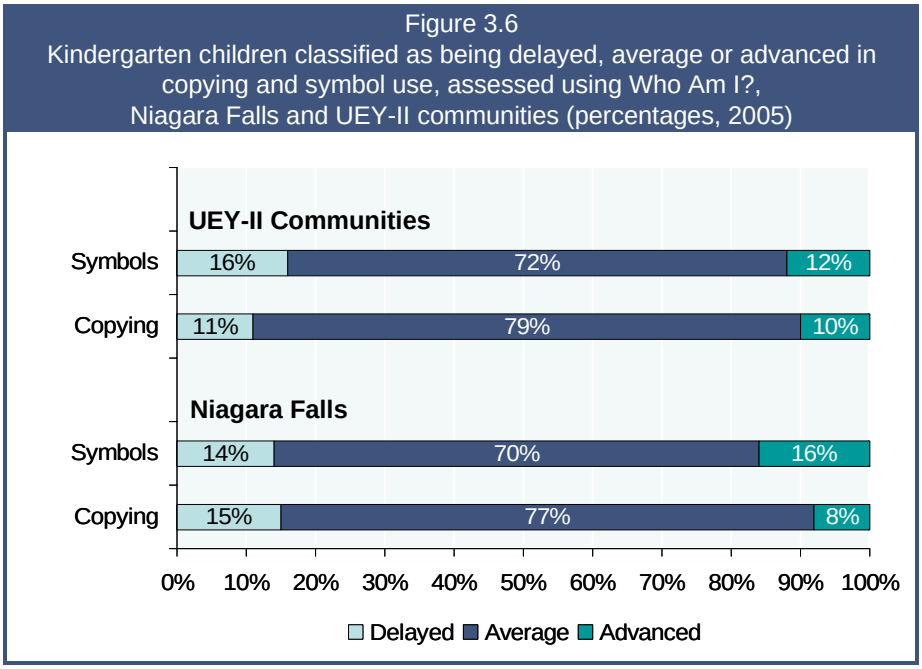


Figure 3.6 provides a further look at the two components of the Who Am I? assessment: copying skills and symbol use. The results indicate that Niagara Falls children were stronger in use of symbols than the average among the UEY-II communities. Among themselves, Niagara Falls children were slightly stronger in symbol use than in copying skills, with 16% being advanced in symbol use and 8% advanced in copying skills.

Figure 3.6
Kindergarten children classified as being delayed, average or advanced in copying and symbol use, assessed using Who Am I?, Niagara Falls and UEY-II communities (percentages, 2005)

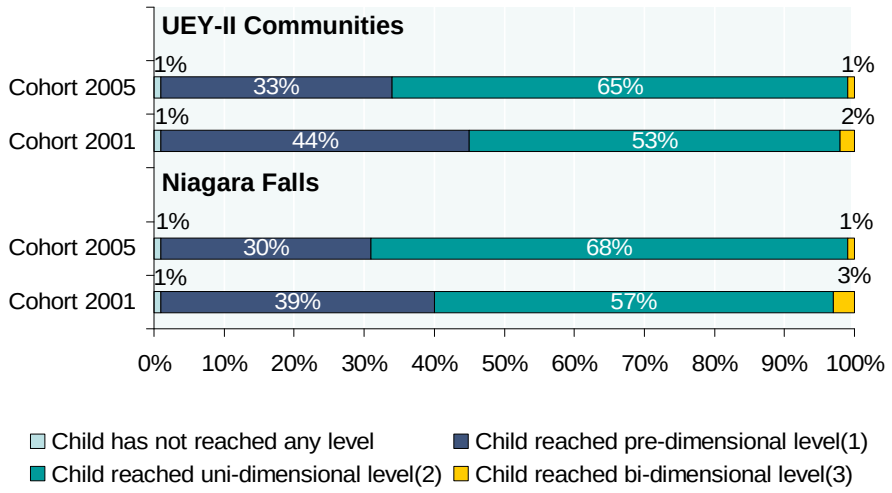


3.2.3 Number Knowledge Test

The Number Knowledge Test assesses children's understanding of the numbering system, which is the basis of addition and subtraction. During the test, children are asked to demonstrate their understanding of quantity (more vs. less), ability to count objects, understanding of number sequence, and ability to do simple arithmetic.

The test contains questions organized by three developmental levels; each level provides the conceptual building block for knowledge at the next level. The three levels are designed to assess whether a child has reached the 4-year-old (level 1 – pre-dimensional), 6-year-old (level 2 – uni-dimensional) or 8-year-old (level 3 – bi-dimensional) equivalent of intuitive knowledge of numbers.

Figure 3.7
Kindergarten children classified according to intuitive number knowledge level, assessed using the Number Knowledge Test, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)



As illustrated in Figure 3.7, of the Niagara Falls children participating in the Number Knowledge Test in 2005, only about 1% failed to reach level 1 (the 4-year-old equivalent). The majority (99%) reached either level 1 (30%) or level 2 (68%) (the 6-year-old equivalent). Very few, about 1%, achieved level 3 (the 8-year-old equivalent). These results are significantly better than those from 2001, when 39% of children reached level 1 and only 57% made level 2. The Number Knowledge results for Niagara Falls also appeared almost identical to those of the whole UEY-II sample.

3.3 Emotional and Behavioural Outcomes

As part of the Communities Survey, PMK were asked to provide information on their children's social, emotional and behavioural development. The questions, designed to discover the extent to which children exhibit various signs of developmental problems, were organized according to four behavioural measures:

Anxiety/emotional problems: assesses the degree to which children seem unhappy or depressed; tend to be solitary; are nervous, high strung or tense; or have trouble enjoying themselves.

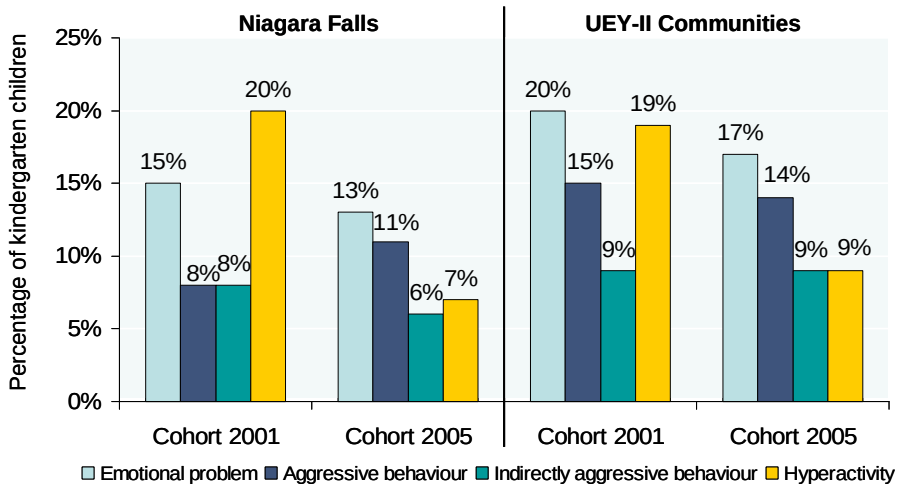
Physical aggression/conduct disorder: assesses the degree to which children are physically aggressive toward other people (including by kicking, biting or hitting). It also reflects behaviours related to threatening, bullying and cruelty to other children.

Indirect aggression: assesses the degree to which children who are angry with someone will try to make others dislike that person; become friends with someone else to take revenge on the person; say negative things about people behind their backs; or tell secrets to a third person.

Hyperactivity/inattention: assesses the degree to which children are restless or fidgety; cannot concentrate or pay attention for long; are impulsive; have difficulty waiting their turn; or cannot settle down to any task for more than a few moments.

For each of these four measures, the higher the score, the more the child exhibits behaviours consistent with those identified in the measure. For the purposes of this study, we designated scores equal to or greater than the 85th percentile of the whole UEY-II sample as representing signs of behavioural problems. If a child's aggression score is equal to or greater than the 85th percentile, the child is deemed to have problems in that behavioural domain. The percentile score in this case suggests that the child is more aggressive than 85 out of 100 children who are assessed on this indicator of behaviour.

Figure 3.8
Kindergarten children showing signs of emotional and behavioural problems (scoring higher than the 85th percentile), Niagara Falls and UEY-II communities (percentages, 2001 and 2005)



The results shown in Figure 3.8 provide some evidence that Niagara Falls children improved in the areas of emotional development and problem behaviours over the study period. In particular, there was a significant decline in the prevalence of children with signs of hyperactivity, down from 20% in 2001 to only 7% in 2005. The percentages of children showing signs of emotional problems and indirectly aggressive behaviours also dropped slightly, from 15% to 13% and from 8% to 6% respectively. However, the percentage of children with aggression problems increased, from 8% in 2001 to 11% in 2005.

Generally speaking, when compared with the UEY-II communities, Niagara Falls had lower proportions of children displaying problems in all four of the behavioural domains discussed in this chapter.

3.4 Summary

Overall, results from the Communities Survey indicate that the majority of Niagara Falls children continued to enjoy good health in 2005, even though one in four had a long-term condition. There was evidence that the 2001 and 2005 cohorts performed similarly with respect to cognitive skills, registering almost identical scores on receptive vocabulary skills, as measured by the PPVT-R. In this developmental area, Niagara Falls children performed better than the average across the UEY-II communities, but slightly below the national norm. It is also noteworthy that close to one in five Niagara Falls children were considered delayed in vocabulary development, based on the national standard. By comparison, the fraction of UEY-II sample children receiving delayed PPVT scores was about one quarter.

With regard to performance on the Who Am I? assessment and Number Knowledge Test, Niagara Falls children scored close to the average recorded across the UEY-II communities. On Who Am I?, for example, 13% of children received a score that signified delayed cognitive development, based on the norm of UEY-II communities; the corresponding figure in the whole UEY-II sample was 12%. On the Number Knowledge assessment, considerably more children reached the 6-year-old equivalent level of number knowledge in 2005 than in 2001 (68% vs. 57%).

Children in Niagara Falls showed some improvement between 2001 and 2005 in three of the four domains of behaviour discussed in this chapter: emotional development, indirectly aggressive behaviours and hyperactivity. Their progress in the area of hyperactivity was particularly notable: in 2001, one in five children showed signs of hyperactivity, compared with just 7% in 2005. However, the percentage of children with aggression problems went up slightly during the period. Compared with the average across the UEY-II communities, in 2005 Niagara Falls had a lower proportion of children displaying problems in all four behavioural domains.

As touched on in Chapter 2 and explored more fully in Appendix A, the extensive literature on early childhood development points to a wide range of developmental influences: demographic factors, family resources, parenting practices, and physical and socio-economic environments. These include the gender of the child, income level of the child's household, parents' education and employment, and family structure. In addition, children's experiences in the home and community, such as relationships with parents, literacy activities in the home, and opportunities to participate in group activities in the community, have been linked to early developmental outcomes. In the following chapter, we will present more data from the Communities Survey and discuss the various factors that may have affected the development of children in Niagara Falls.

4. Niagara Falls Young Children, Their Families and the Community

In this chapter, we draw on results from the 2001 and 2005 data collection cycles of the Communities Survey in Niagara Falls to discuss how circumstances may have changed for kindergarten children during that 4-year period, and to explore how these factors, and changes in these factors, may have affected these children. As in Chapter 3, results for Niagara Falls are compared, where appropriate, with averages across the seven communities participating in the second pilot phase of the Understanding the Early Years (UEY-II) initiative.

The information presented is based on analysis of interviews with persons most knowledgeable about the children (PMK) that were conducted by Statistics Canada in 2001 and 2005. PMK (the majority of whom were the children's mothers) provided valuable information that could help the Niagara Falls community better understand the needs and experiences of its children.

4.1 Children: Demographic Characteristics and Developmental Outcomes

4.1.1 Gender

As part of the Communities Survey, information was collected on the major demographic characteristics of Niagara Falls children, including gender, birthplace and first language(s) learned at home. Research shows that these major demographic variables are often related to children's developmental outcomes.

As shown in Table 4.1, slightly more than half of Niagara Falls kindergarten children were boys, and the gender ratio remained almost unchanged between 2001 and 2005.

Table 4.1
Distribution of kindergarten children by gender, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)

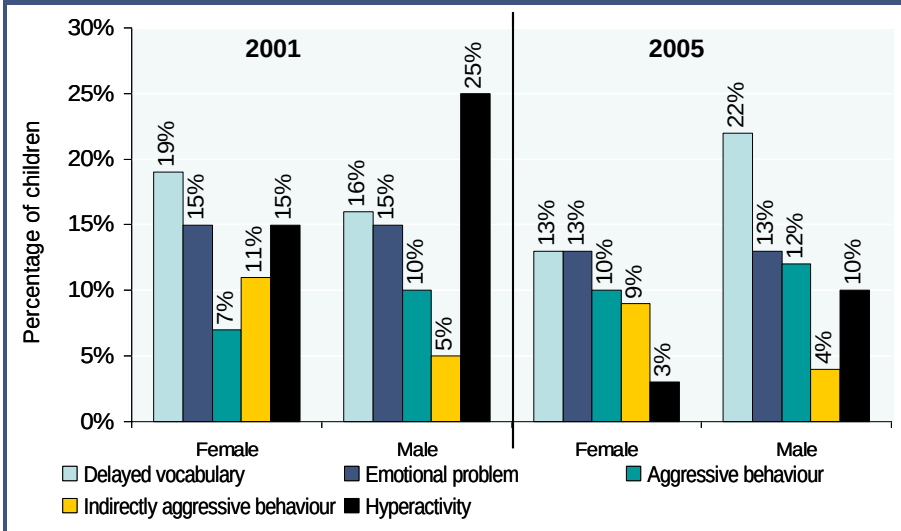
	Niagara Falls		UEY-II communities	
	2001	**2005**	**2001**	**2005**
Girls	47.7	48.0	48.7	49.1
Boys	52.3	52.0	51.3	50.9
Total	100.0	100.0	100.0	100.0

Research has identified gender as an important factor influencing child outcomes. Generally speaking, girls are slightly better than boys in reading and prosocial skills, about the same in math and general knowledge, and less likely to engage in problem behaviours at the beginning of kindergarten. These gender differences were noticeable among Niagara Falls children, but there was also evidence that some gender gaps were changing.

As illustrated in Figure 4.1, in 2001, girls in Niagara Falls were slightly more likely than boys to be delayed in vocabulary development (19% vs. 16%), as assessed using the Peabody Picture Vocabulary Test – Revised (PPVT-R). However, the result from 2005 indicates that boys were more prone than girls to be delayed in vocabulary development (22% vs. 13%).

On measures of behaviour, boys in Niagara Falls were slightly more likely than girls to be physically aggressive, whereas girls were more likely than boys to display indirectly aggressive behaviours. In 2005, 12% of boys, compared with 10% of girls, demonstrated aggressive behaviour problems. In the same year, 9% of girls, as against 4% of boys, showed signs of indirectly aggressive behaviour. The results also show that in 2001 one in four boys were considered hyperactive by PMK, compared with 15% of girls. Although the overall prevalence of hyperactive children declined considerably in 2005, the gender gap increased from 1.7 to 3.3 times: 10% of boys, as opposed to 3% of girls, were considered to have short attention spans.

Figure 4.1
Gender and kindergarten children's developmental outcomes, Niagara Falls (percentages, 2001 and 2005)



On the other hand, no evidence of a gender difference in emotional development was found in either 2001 or 2005: boys appeared as likely as girls to show signs of emotional problems in both years.

4.1.2 Children's birthplace and first language(s)

Niagara Falls is becoming an increasingly ethnically and culturally diverse community (see Table 4.2). Although the vast majority of Niagara Falls children were born in Canada, this proportion declined slightly from 98% in 2001 to 95% in 2005.

Table 4.2
Distribution of kindergarten children by birthplace and first language(s), Niagara Falls and UEY-II communities (percentages, 2001 and 2005)

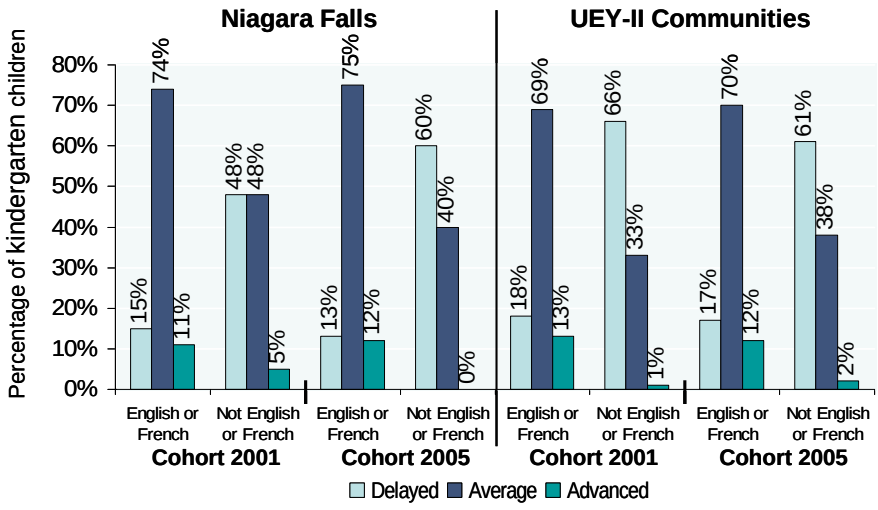
	Niagara Falls		UEY-II communities	
	2001	**2005**	**2001**	**2005**
Birthplace				
Canada	97.6	95.2	94.0	92.5
United States	0.3	1.5	0.6	0.9
Europe	0.3	0.2	0.6	0.8
Asia	-	1.0	0.8	1.0
Other	1.78	2.10	4.0	4.7
First language(s) learned at home				
English only	94.5	88.6	56.7	65.2
French only	-	0.2	23.7	14.8
English & French only	0.2	0.2	0.3	0.2
English & French & other	-	-	-	0.1
English & other (no French)	-	1.5	0.8	1.9
French & other (no English)	-	-	0.4	0.8
Neither English nor French	5.3	9.5	18.0	17.0
Total	100.0	100.0	100.0	100.0

The growing diversity of the community is reflected in the changes in the first language(s) the children acquired at home. In 2001, about 95% of Niagara Falls children spoke English as their only mother tongue. By 2005, this proportion was down by 6 percentage points. Over the same period, the proportion of children speaking languages other than English or French as their first language(s) almost doubled, up from 5% in 2001 to 10% in 2005. These may include children who were born in non-English- or non-French-speaking countries, as well as children of recent immigrants coming from those countries.

The study results indicate that ethnicity, birthplace and first language(s) are important in explaining developmental differences, especially in language skills, among young children living in Niagara Falls.

As shown in Figure 4.2, first language(s) learned at home were strongly related to the language outcomes of Niagara Falls children. Nearly half of the children (48%) whose first language was neither English nor French were found to experience difficulty in learning English or French vocabulary, compared with 15% of children whose mother tongue was English or French. This gap expanded in 2005, with 60% of children whose mother tongue was neither English nor French receiving low PPVT-R scores as opposed to 13% of children who were native speakers of English or French.

Figure 4.2
First language(s) learned at home and receptive language development, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)



4.2 Families: Characteristics and Resources for Children's Development

This section describes Niagara Falls children's families with respect to household income; parents' birthplace, health, level of education and labour market participation; and family structure. The descriptive data for Niagara Falls as well as the combined sample of seven UEY-II communities are presented in Tables 4.3 to 4.7. The section also presents results that explore the relationships between these socio-economic characteristics ("family resources variables") (see Chapter 2) and children's developmental outcomes.

4.2.1 Household income

Table 4.3
Distribution of kindergarten children by household income, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)

	Niagara Falls		UEY-II communities	
	2001	**2005**	**2001**	**2005**
Household income				
Mean (dollars, inflation-adjusted)	$53,140	$57,254	$51,898	$57,231
Below LICO	21.7	20.5	22.4	29.4
LICO to less than 2 times LICO	37.7	33.7	35.6	37.7
2 times LICO to less than 3 times LICO	25.1	30.1	24.3	20.6
3 times LICO or above	15.5	15.7	17.7	12.3
Total	100.0	100.0	100.0	100.0

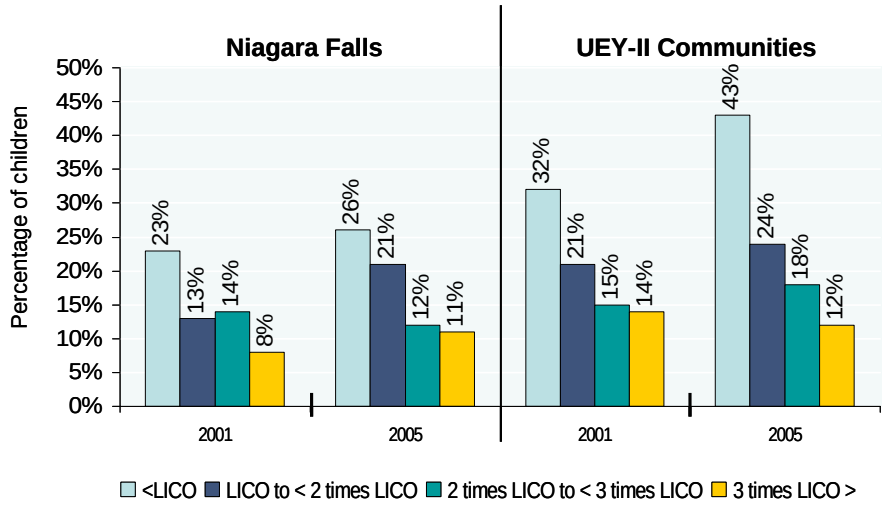
Table 4.3 displays the average household income for children's families in Niagara Falls, adjusted for inflation.[6] It also presents the distribution of kindergarteners in Niagara Falls according to family income status. The income status was measured by dividing the household income by the value of the low-income cut-off (LICO) reported by Statistics Canada. Statistics Canada establishes the low-income thresholds or values based on different urban and family sizes and updates them annually using the Consumer Price Index.

The average household income for Niagara Falls children, adjusted for inflation, increased substantially between 2001 and 2005, by about $4,000. However, despite the sizable improvement in average household income, the percentage of children living in low-income families remained high, at around 20%. Nevertheless, the economic well-being of Niagara Falls children compared favourably with the average across the UEY-II communities: between 2001 and 2005, the average household income in the UEY-II sample increased by more than $5,000, yet the proportion of children living below LICO rose by one third, from 22.4% in 2001 to 29.4% in 2005.

As depicted in Figure 4.3, there is a significant relationship between family income and PPVT-R scores: the percentage of low PPVT-R scores declines as family income level increases. Children in the lowest-income families (below LICO) were three times more likely than those from the highest-income families (three times LICO or above) to be classified as being delayed in vocabulary development (23% vs. 8%). The corresponding gap in 2005 was smaller, yet still significant (26% vs. 11%).

[6] Adjusted income is calculated using changes in the provincial inflation rates between 2001 and 2005. The inflation rate is determined using the ratio of Consumer Price Index (CPI) between the two survey years (i.e., CPI2005/CPI2001). For Ontario, this inflation rate is 9%. The adjusted household income in 2005 = estimated household income in 2005 / (1+inflation).

Figure 4.3
Family income level and kindergarten children with low vocabulary scores, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)

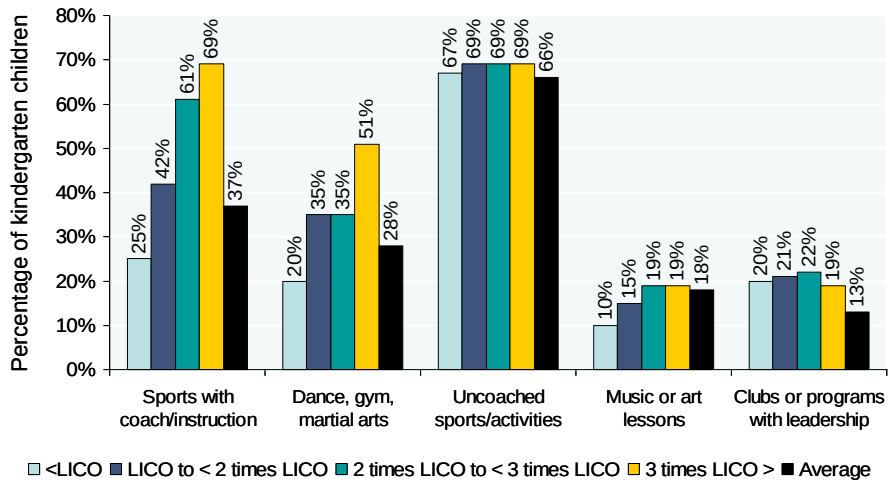


The data also show that children with vocabulary difficulties came from all income groups, indicating that income is not the only factor influencing vocabulary development. Other factors, such as parental education and parenting practices, can also affect vocabulary scores and school success.

On the other hand, research shows that family income level is strongly linked to children's participation in early childhood activities, particularly supervised group activities. These activities are important to children as they build the foundation for core skills and success in school. In addition, children learn to socialize with their peers during these activities. Thus, by affecting children's access to early childhood activities, family income may have an indirect influence on children's outcomes.

The results illustrated in Figure 4.4 generally support this research finding. Children in high-income families were much more likely than their peers to participate in coached sports; dance, gym or martial arts classes; and music or art lessons. For example, children living at three times LICO or above were almost three times as likely as children living below LICO to be enrolled in coached sports (69% vs. 25%). In contrast, activities such as uncoached sports, community clubs or leadership programs did not appear to be associated with family income.

Figure 4.4
Family income level and kindergarten children's participation in sports, other physical activities, music or art lessons, and clubs or leadership programs, Niagara Falls (percentages, 2005)



4.2.2 Parents' birthplace

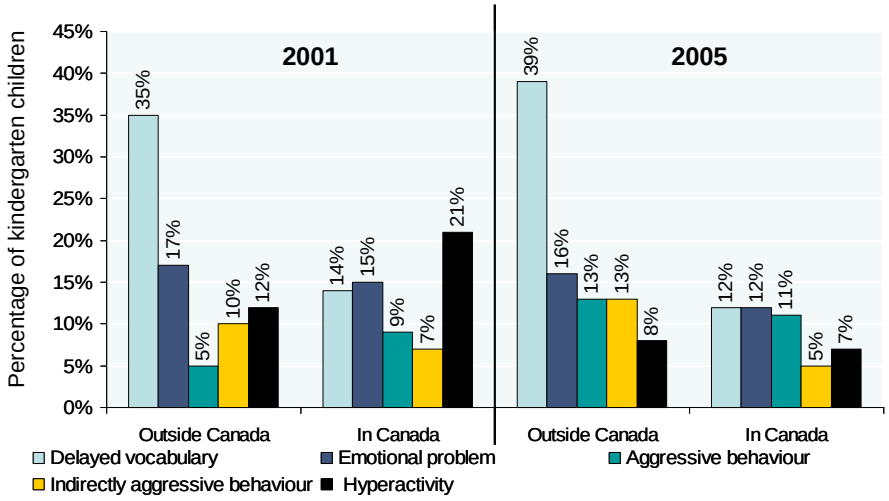
Table 4.4
Distribution of kindergarten children by PMK birthplace, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)

	Niagara Falls		UEY-II communities	
	2001	2005	2001	2005
PMK birthplace				
Canada	87.7	79.4	70.7	69.5
United States	1.5	2.8	1.0	1.1
Europe	6.3	2.4	5.0	2.5
Asia	2.1	3.8	7.1	6.8
Other	2.4	11.6	16.2	15.2
Not stated	-	-	-	4.9
Total	100.0	100.0	100.0	100.0

The increasingly multi-ethnic character of Niagara Falls was reflected in the proportion of PMK born outside North America and Europe, which increased significantly between 2001 and 2005 (see Table 4.4). In 2001, fewer than 5% of Niagara Falls PMK were born in Asian or "other" countries; by 2005, that proportion had increased to more than 15%.

The data illustrated in Figure 4.5 suggest a significant relationship between PMK birthplace (Canada vs. other countries) and various child outcomes.

Figure 4.5
PMK birthplace and developmental outcomes of kindergarten children, Niagara Falls (percentages, 2001 and 2005)



For example, children of PMK born outside Canada were much more likely to experience delayed vocabulary development: 35% received low PPVT-R scores in 2001, compared with 14% of children of PMK born in Canada. The gap was even wider in 2005, when 39% of children of PMK born outside Canada were considered delayed in vocabulary development, compared with 12% of children of PMK born in Canada. The data also indicate that children of PMK born outside Canada were slightly more likely to show signs of emotional problems.

On behavioural outcomes, the 2005 data show that children of foreign-born PMK were about 2.6 times more likely than children of Canadian-born PMK to show indirectly aggressive behaviours (13% vs. 5%). On the other hand, the data from 2001 indicate that children of foreign-born PMK were less likely than children of Canadian-born PMK to exhibit aggressive behaviours and hyperactivity problems. However, data from 2005 did not provide further evidence of these differences. For example, in 2005, about the same proportions of children from both demographic groups showed signs of short attention spans (8% vs. 7%).

PMK born outside Canada reflect a variety of norms, values, ethnicities, cultures and linguistic backgrounds. Some characteristics – such as belonging to a racial or ethnic minority group – likely represent challenges related to labour market participation, health status and civic participation. Therefore, further studies are required to unravel the underlying relationship between PMK birthplace and the various developmental outcomes of young children.

4.2.3 Parents' level of education and employment status

Since the 1980s, the percentage of young children's mothers who have completed post-secondary education has been increasing steadily in Canada. This trend was observed in Niagara Falls between 2001 and 2005, with the percentage of PMK (mostly mothers) with a university degree or college diploma increasing by 47%, from 31% to 45% (see Table 4.5). At the same time, the proportion of PMK who had not completed secondary school declined by 30%, from 12% to 8%, over the 4-year period. Similar trends were observed across the UEY-II communities.

Little change, however, took place in the labour market participation of young children's parents in Niagara Falls. In 2005, 73% of PMK were engaged in paid employment, almost the same as in 2001. The data also show that in both 2001 and 2005, 14% to 15% of Niagara Falls children lived in no-earner families. In 2005, PMK in Niagara Falls registered a higher employment rate than the average across the UEY-II sample (73% vs. 68%), and considerably more children had both parents working outside the home (86% vs. 82%).

Table 4.5 Distribution of kindergarten children by PMK education level and PMK and parents' employment status, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)				
	Niagara Falls		UEY-II communities	
	2001	2005	2001	2005
PMK education level				
Less than secondary school	11.5	8.0	16.8	10.4
Secondary school	15.4	18.6	17.6	18.5
Beyond secondary school	42.5	28.4	26.4	20.3
College or university	30.6	45.0	39.1	50.7
PMK employment status				
Currently working	72.9	73.1	66.0	68.2
Not working/worked last year	6.3	7.6	6.1	7.1
Not working/did not work last year	20.8	19.3	27.9	24.7
Parents' employment status				
At least one parent working	85.1	86.0	80.5	82.1
No parent working	14.9	14.0	19.5	17.9
Total	100.0	100.0	100.0	100.0

Research indicates that maternal education level is positively associated with child outcomes such as academic achievement. However, as shown in Figure 4.6a, only the 2005 data from Niagara Falls provide evidence of such a relationship with respect to vocabulary development: children of PMK without a secondary school diploma were more likely to be delayed in this area of development (as assessed using the PPVT-R). Nevertheless, the majority of Niagara Falls children (more than 75%) registered normal or advanced vocabulary skills at age 5, regardless of PMK level of education.

Figure 4.6a
PMK education level and vocabulary outcomes of kindergarten children, Niagara Falls (percentages, 2001 and 2005)

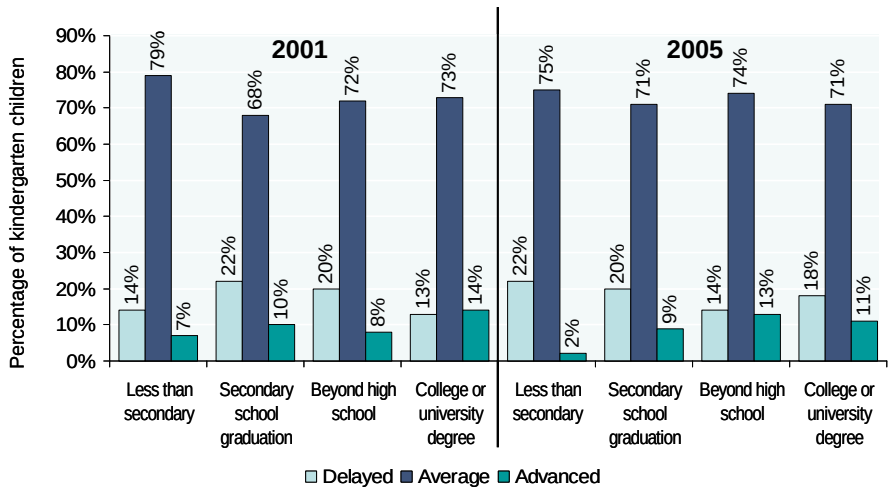
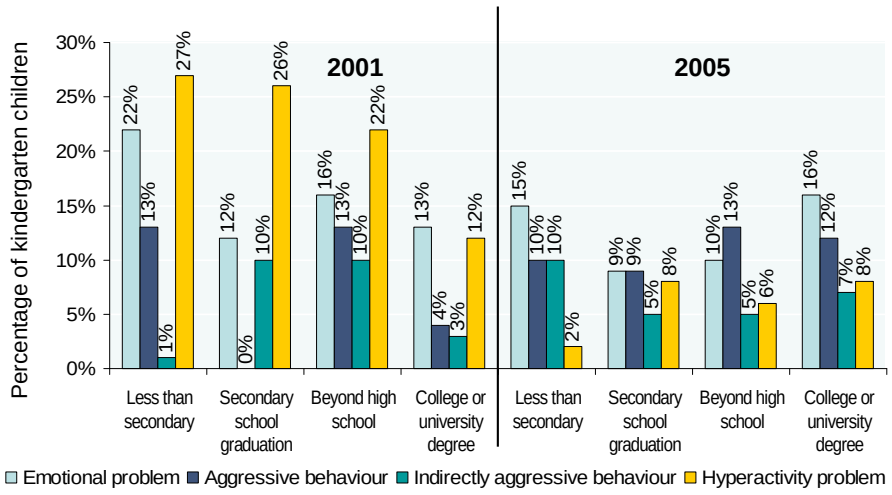


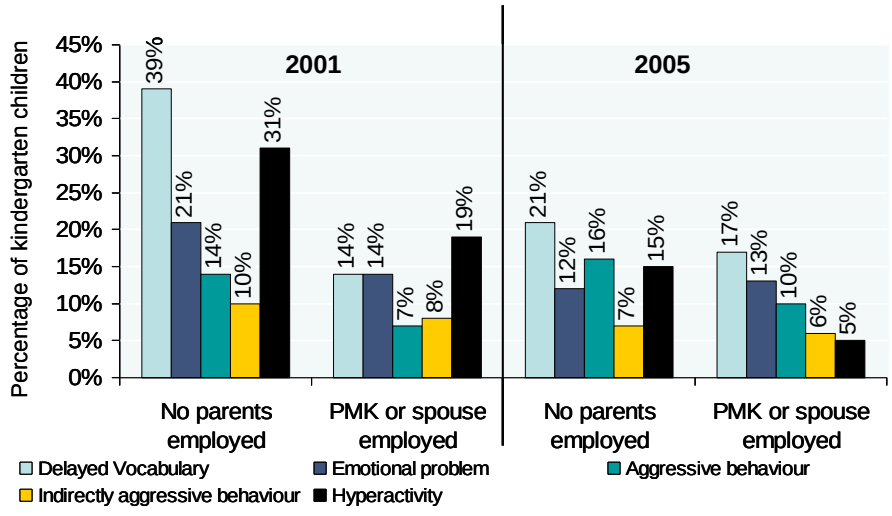
Figure 4.6b explores the relationship between PMK education level and children's outcomes with respect to emotional development, aggressive and indirectly aggressive behaviours and hyperactivity. The results indicate that the relationship varied according to developmental domain and survey year.

Figure 4.6b
PMK education level and emotional and behavioural outcomes of kindergarten children, Niagara Falls (percentages, 2001 and 2005)



Generally, children of PMK with the lowest education level (less than secondary) were more likely than other children to show signs of emotional problems (2001), hyperactivity (2001), aggressive behaviours (2001) and indirectly aggressive behaviours (2001 and 2005). Nevertheless, the data did not consistently show strong, linear relationships between PMK education levels and children's emotional and behavioural development. However, the 2001 data on hyperactivity indicate that the higher the PMK education level, the less likely the child was to show problems with attention span.

Figure 4.7
Parents' employment status and developmental outcomes of kindergarten children, Niagara Falls (percentages, 2001 and 2005)



Parents' employment status influences family income, which in turn affects resources available for raising children. At the same time, parents' employment can also directly affect children's health and educational outcomes. For example, working parents tend more than non-working parents to stress independence training for children, which can be an advantage for these children as they learn.

The data displayed in Figure 4.7 indicate that parents' employment status is significantly related to the cognitive and behavioural development of Niagara Falls children. For example, in both 2001 and 2005, children in no-earner families were considerably more likely than children with at least one working parent to receive low PPVT-R scores and display aggressive behaviours. As well, data from both years show that a higher percentage of children from no-earner families were hyperactive.

However, the results are not consistent with respect to relationships between parents' employment and children's emotional development and indirectly aggressive behaviours. The 2001 results indicate that children from no-earner families were more likely than others to display signs of emotional problems (21% vs. 14%) and indirectly aggressive behaviours (10% vs. 8%). However, the 2005 data did not provide further evidence for such relationships.

4.2.4 Parents' health

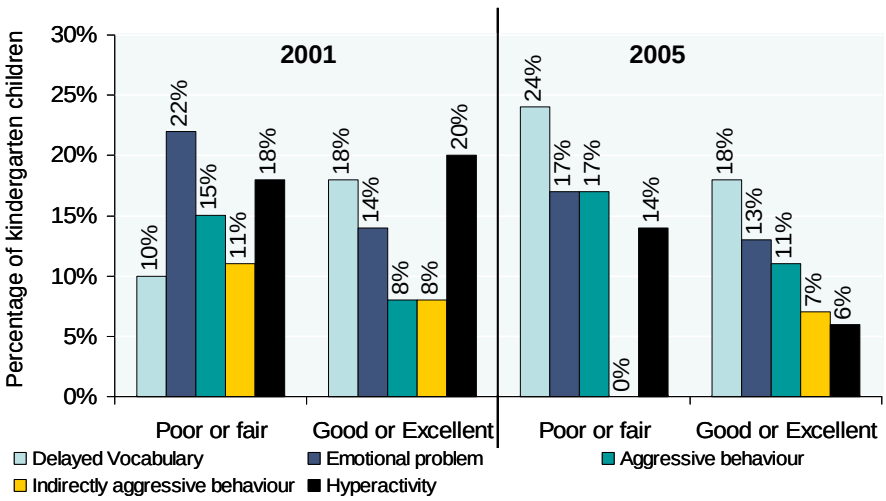
Parents' health, especially a mother's physical and emotional health, can affect the level as well as the quality of time and attention that parents devote to their children. Since parent–child interaction is instrumental in the healthy development of children, a parent's poor health will likely negatively affect developmental outcomes.

Table 4.6
Distribution of kindergarten children by PMK health status, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)

	Niagara Falls		UEY-II communities	
	2001	**2005**	**2001**	**2005**
PMK health status				
Excellent	32.6	34.2	33.4	33.1
Very good	37.9	38.4	37.0	38.1
Good	21.1	21.3	21.0	22.3
Fair	5.3	3.9	6.5	4.9
Poor	3.2	2.1	2.1	1.5
PMK with chronic condition				
Yes	41.6	34.8	35.7	40.5
No	58.4	65.2	64.3	59.3
Total	100.0	100.0	100.0	100.0

As shown in Table 4.6, in 2001, about 42% of PMK reported that they had a chronic health condition; this figure went down considerably in 2005 to 35%. Although more than one third of PMK suffered from a long-term health condition, the vast majority (over 90%) rated themselves as having generally good to excellent health in 2005. Figure 4.8 explores the association between PMK poor health and the developmental outcomes of Niagara Falls children.

Figure 4.8
PMK health status and developmental outcomes of kindergarten children, Niagara Falls (percentages, 2001 and 2005)



The 2001 data clearly show that PMK poor health could be a risk factor for Niagara Falls children in various aspects of development, including emotional development and problem behaviours. Children of PMK in poor health were more likely than children of PMK in good health to display signs of emotional problems (22% vs. 14%), aggressive behaviours (15% vs. 8%) and indirectly aggressive behaviours (11% vs. 8%).

The 2005 data confirmed that PMK health was related to children's emotional development and aggressive behaviours. In addition, the 2005 results provided further evidence that PMK health could be related to children's vocabulary skills and hyperactivity. For example, children of PMK in poor health were 1.3 times more likely than those of PMK in good health to show delayed vocabulary development. They were also 2.3 times more likely to show signs of hyperactivity. (Note: Only a small proportion of PMK rated their health as "fair" or "poor." Thus, the results discussed should be interpreted with caution.)

4.2.5 Family structure

Family structure and family size can affect the level as well as the quality of time and attention that parents devote to their children. They also influence the financial resources available for each child. Single-parent families are more likely to have low family incomes, which means they face more challenges and stresses in raising their children.

Table 4.7
Distribution of kindergarten children by family structure, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)

	Niagara Falls		UEY-II communities	
	2001	**2005**	**2001**	**2005**
Number of parents in household				
Two parents	71.1	74.2	69.5	75.4
One parent	27.5	25.0	28.0	24.1
Child does not live with a parent	1.5	0.8	2.5	0.4
Number of children (0–17 years) in household				
One child	23.4	19.4	23.3	18.6
Two children	50.6	52.0	44.2	46.9
Three children	18.7	20.7	21.7	24.2
More than three children	7.3	7.9	10.8	10.3
Total	100.0	100.0	100.0	100.0

As shown in Table 4.7, changes occurred in the structure of young children's families in Niagara Falls. A slightly higher proportion of children lived in a two-parent family in 2005 than in 2001 (74% vs. 71%). About 81% of children had one or more siblings in 2005, up from 77% in 2001. In 2005, as in 2001, about half of Niagara Falls kindergarteners lived in a family with two parents and two children under 17 years of age – a typical family structure in the Niagara Falls community.

Figure 4.9
Family structure (one- or two-parent family) and developmental outcomes of kindergarten children, Niagara Falls (percentages, 2001 and 2005)

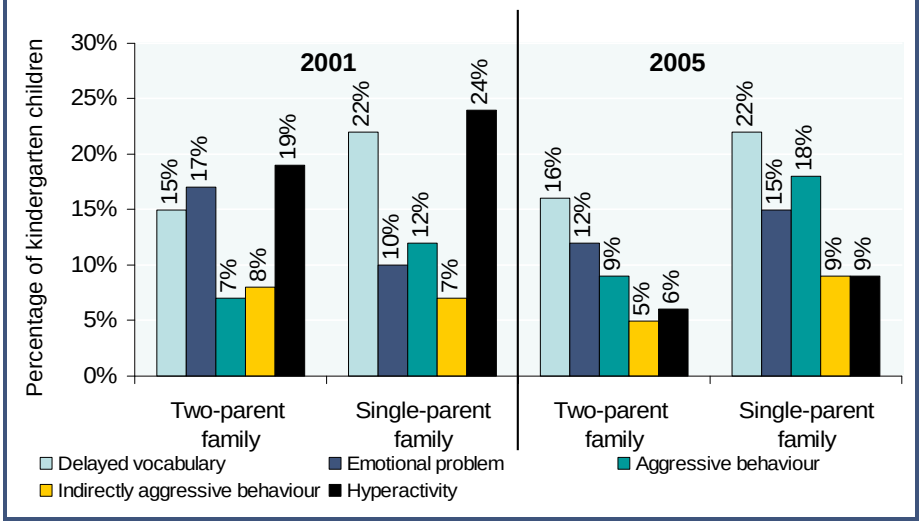


Figure 4.9 illustrates the relationship between family structure (one- or two-parent family) and various child outcomes. The results from both 2001 and 2005 suggest that Niagara Falls children living in single-parent families were more likely than children living in two-parent families to have delayed vocabulary scores, display aggressive behaviours and show signs of hyperactivity. In addition, data from 2005 show that family structure may also have been related to children's emotional development and indirectly aggressive behaviours: children in two-parent families were less prone than children in single-parent families to show emotional problems (12% vs. 15%) and indirectly aggressive behaviours (5% vs. 9%).

4.3 Families: Family Processes and Children's Developmental Outcomes

This section focuses on some major family processes related to developmental outcomes: family functioning, parent–child interactions, parents' engagement in learning activities with their children, and childcare arrangements.

4.3.1 Family functioning

Family functioning refers primarily to the cohesiveness and adaptability of the family. It is more about how well the family functions as a unit than the relationships between spouses or between parents and their children. Studies have shown that family functioning is related to children's developmental outcomes, especially children's behaviour.

In both cycles of data collection for the Communities Survey, information was gathered on whether PMK thought their family members were able to communicate and discuss feelings and concerns among themselves; make decisions and solve problems collectively; get along well with one another; and feel accepted for who they are.

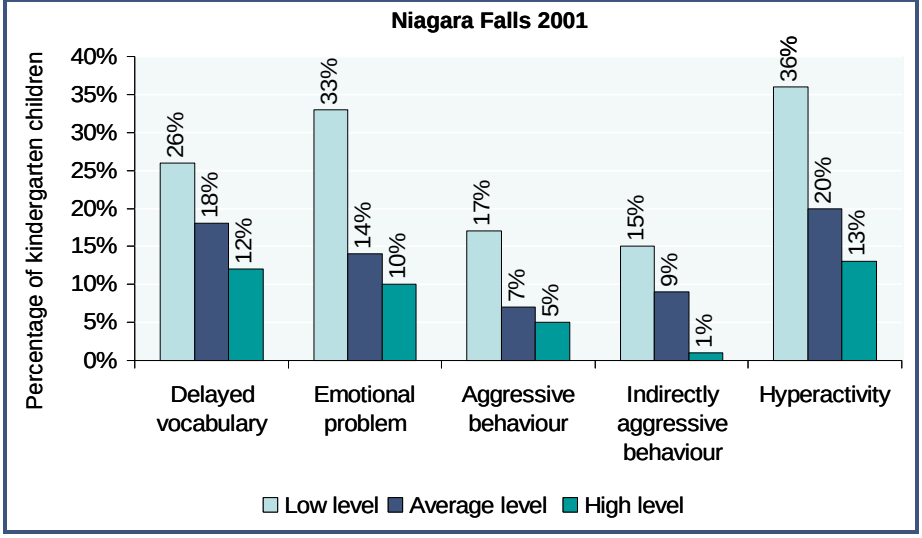
Table 4.8 Distribution of kindergarten children by level of family functioning, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)				
	Niagara Falls		UEY-II communities	
	2001	2005	2001	2005
Family functioning				
Mean (rescaled to 100)	75.6	76.2	76.3	75.1
High level (mean + 1 standard deviation)	18.4	21.9	23.2	18.6
Average level (within 1 standard deviation)	73.2	69.2	64.4	69.5
Low level (mean – 1 standard deviation)	8.5	8.8	12.4	11.9
Total	100.0	100.0	100.0	100.0

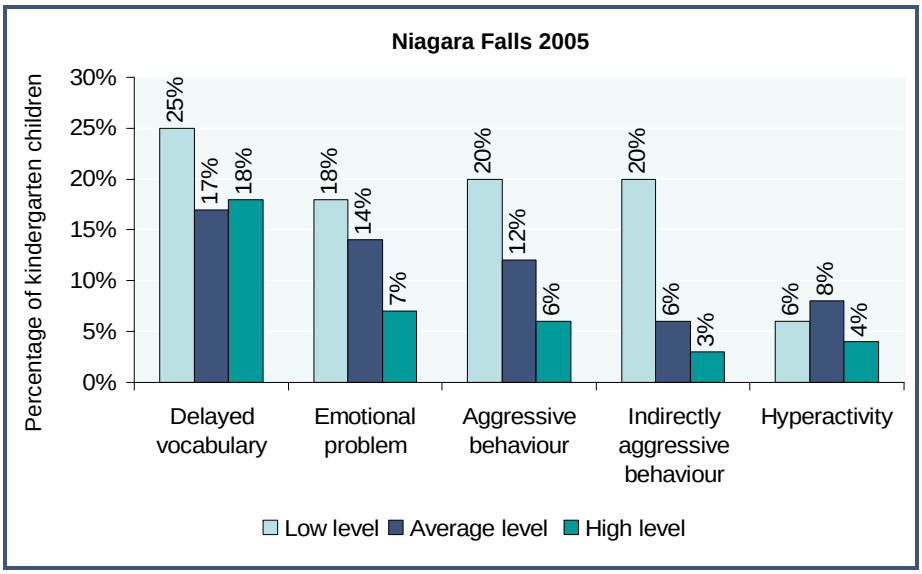
As shown in Table 4.8, the mean family functioning scores of Niagara Falls families showed little change between 2001 and 2005, and were almost identical to the averages across the UEY-II communities. However, means indicate only how well families function on average. They tell us nothing about what proportion of families function above or below the "normal" range or how above or below normal functioning may affect children's developmental outcomes. To explore this issue further, we classified family functioning into three levels: "high," "average" and "low." A family functioning score that was one standard deviation below the UEY-II sample mean represented a low level of family functioning, a score one standard deviation higher than the UEY-II sample mean represented a high level of family functioning, and scores within one standard deviation of the mean were scores for an average or normal level of family functioning. (Note: Other family process variables are classified in a similar fashion in the following sections.)

The results, based on this classification of family functioning, indicate that the vast majority of Niagara Falls children (91% in 2001 and 2005) lived in families at the high or average level of family functioning. Only about 9% of children lived in families functioning less well than the majority of families in the UEY-II communities.

Studies have shown that family functioning is related to a number of children's developmental outcomes, especially behaviours. Figure 4.10 presents results exploring the relationship between family functioning and children's development in the domains of vocabulary, emotion and behaviour.

Figure 4.10
Family functioning and developmental outcomes of kindergarten children,
Niagara Falls (percentages, 2001 and 2005)





The results indicate that not only the behaviours, but also the cognitive and emotional development, of Niagara Falls children were significantly associated with family functioning. For example, in 2001, children in families functioning at the low level were more than twice as likely as those in families functioning at the high level to receive low PPVT-R scores (26% vs. 12%). The corresponding gap in 2005 was 1.4 times (25% vs 18%). As well, children in families functioning at the low level were 3.3 times more likely than those in families functioning at the high level to show signs of emotional problems (33% vs. 10%); the corresponding difference in 2005 was 2.6 times (18% vs. 7%).

In the behavioural domains, data from 2001 and 2005 indicate that children in families functioning at the low level were more than three times as likely as those in families functioning at the high level to exhibit aggressive and indirectly aggressive behaviours. The 2001 data also show that there were considerably more hyperactive children in less cohesive families than in more cohesive families. However, the corresponding gap in 2005 was much smaller.

4.3.2 Parent–child interactions

The nature of parent–child interactions and the degree of cognitive stimulation in the home are other factors influencing developmental outcomes. For example, children who experience positive interactions with a nurturing, involved parent have been found to have better academic and social outcomes than others.

The Communities Survey explored parent–child interactions according to whether they were "positive," "consistent," "rational" or "effective." The positive parent–child interactions score was based on PMK responses to questions asking how often they praise their children, how often they talk and play with their children, and how often they laugh together. The consistent parent–child interactions score was based on PMK responses to questions asking how often children get away with things for which they should have been punished and how often PMK make sure their child follows a command to do something. The rational parent–child interaction score was based on PMK responses to questions on how they react to their children's misbehaviour. For example, if a child misbehaved, did the parents scold or shout at the child, calmly discuss the problem, use physical punishment, or describe alternative and acceptable ways of behaving? Lastly, the effective parent–child interactions score was based on PMK responses to questions on whether they were often annoyed with their child for saying or doing forbidden things, often angry when they punished their child, and often had to discipline the child repeatedly for the same thing.

Table 4.9 Mean scores on four measures of parent–child interactions, Niagara Falls and UEY-II communities (rescaled on a 100-point scale, 2001 and 2005)				
	Niagara Falls		UEY-II communities	
	2001	2005	2001	2005
Parent–child interactions				
Positive parent–child interaction	77.6	77.4	72.1	74.1
Effective parent–child interaction	67.7	69.7	60.6	66.4
Consistent parent–child interaction	68.1	70.6	67.3	68.7
Rational parent–child interaction	58.6	59.9	58.2	59.1

Table 4.9 presents the mean scores on the four parent–child interactions measures, with original scores rescaled on a 100-point scale to facilitate comparisons. Higher scores indicate higher performance on each measure. The data indicate that Niagara Falls PMK scored slightly above the UEY-II averages on positive parenting and effective parenting measures, and close to the UEY-II averages on consistent and rational parenting measures. It is also noticeable that Niagara Falls PMK performed comparably in both 2001 and 2005. To identify children possibly at risk due to poor parenting practices, we classified parenting scores into three levels, “high,” “average” and “low,” based on the mean scores and standard deviations of the UEY-II sample data.

Table 4.10 Distribution of kindergarten children by level of parenting, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)				
	Niagara Falls		UEY-II communities	
	2001	2005	2001	2005
Positive parenting				
High level	20.2	19.3	10.9	14.6
Average level	74.1	74.9	76.2	75.3
Low level	5.7	5.8	12.9	10.1
Effective parenting				
High level	13.8	20.7	18.9	16.9
Average level	71.7	65.3	67.0	69.7
Low level	14.5	14.0	14.1	13.4
Consistent parenting				
High level	14.2	18.8	13.1	16.9
Average level	67.8	68.6	69.4	68.0
Low level	18.0	12.5	17.4	15.1

The analyses presented in Table 4.10 indicate that the vast majority of Niagara Falls PMK (about 90%) performed at the average or advanced level on positive parenting, considerably above the UEY-II norms. The results also indicate that, compared with 2001, in 2005 a higher proportion of Niagara Falls children had PMK who were highly effective and consistent in their parenting practices: more than 85% of PMK performed at the average or advanced level on these measures. At the same time, between 12% and 14% of Niagara Falls children had PMK who performed at the low level on effectiveness and consistency in 2005, which may have put these children at some developmental risk.

Figure 4.11
Positive parenting and developmental outcomes of kindergarten children, Niagara Falls (percentages, 2001 and 2005)

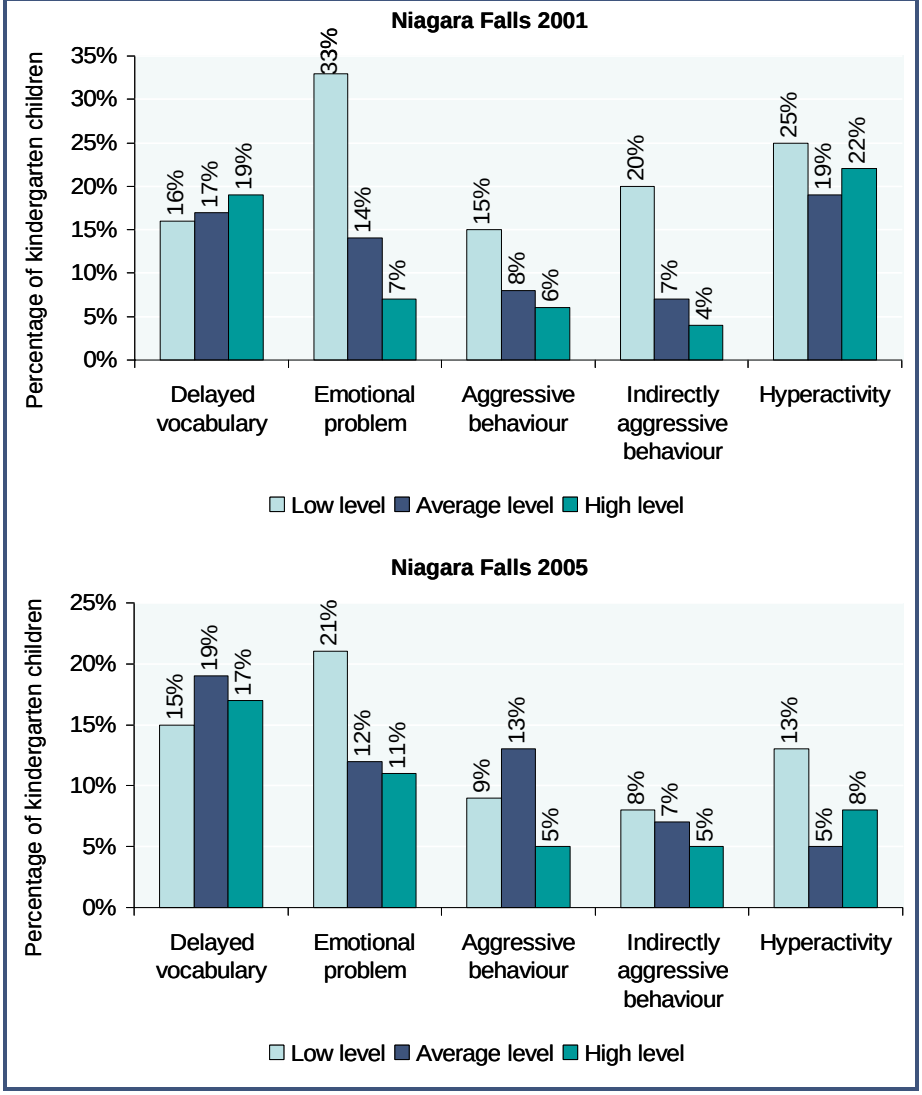


Figure 4.11 explores the effect of positive parenting on various child outcomes. As shown, in 2001 positive parenting appeared to be strongly associated with children's emotional and behavioural development: considerably higher percentages of children in families with low-level positive parenting showed signs of emotional problems, as well as aggressive and indirectly aggressive behaviours. The results from 2005 further confirm the role of positive parenting in children's emotional development and provide some evidence that positive parenting may result in fewer children with attention deficit problems.

Figure 4.12
Consistent parenting and developmental outcomes of kindergarten children, Niagara Falls (percentages, 2001 and 2005)

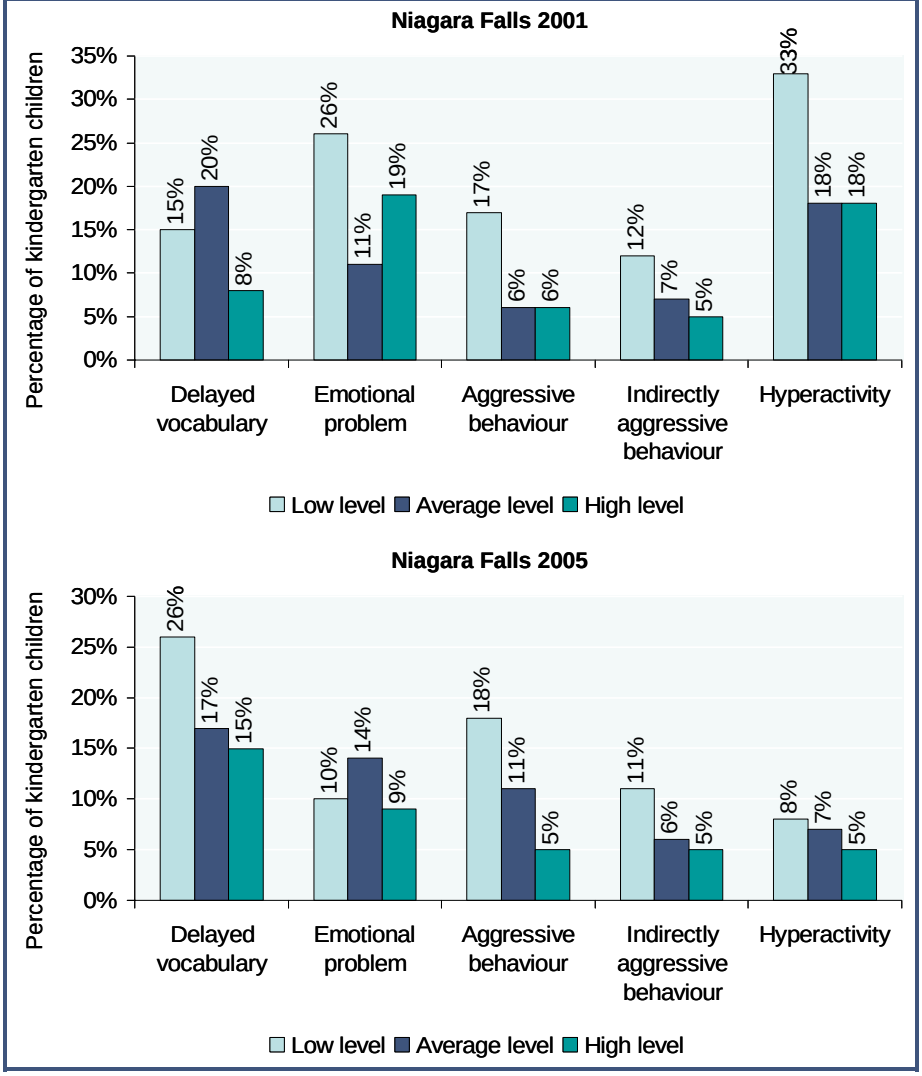


Figure 4.12 examines the role of consistent parenting practices in various child outcomes for Niagara Falls children. As shown, the data from both 2001 and 2005 indicate that consistent parenting was strongly related to better behavioural outcomes. For example, children of PMK who were highly consistent in their parenting practices were two to three times less likely to exhibit behavioural problems, compared with children whose PMK were less consistent in their parenting practices. The 2001 data also show that consistent parenting may have been related to emotional development and hyperactivity, while the 2005 results indicate a strong link between consistent parenting practices and vocabulary development.

4.3.3 Engagement in literacy activities at home

Parents who engage in literacy-related activities with their children can have a major influence on developmental outcomes. In particular, studies find that the amount of time parents spend reading to their children can significantly affect their development regardless of a family's socio-economic status. As part of the Communities Survey, PMK were asked whether and how often they were engaged with their children in learning activities at home. These activities included reading and telling stories to their children, teaching them numbers and words, teaching them how to read and encouraging them to use numbers in daily activities.

As shown in Table 4.11, data from both 2001 and 2005 indicate that the vast majority of Niagara Falls PMK had been actively engaged in providing a stimulating home environment for their children. About 9 in 10 PMK read to their children, taught them numbers and words, and encouraged the use of numbers either daily or at least a few times a week. Reading to children and encouraging number use were the most popular activities: about 70% of Niagara Falls PMK participated in these activities daily with their children. As well, about 50% of PMK helped their children learn by singing to them daily. Overall, Niagara Falls PMK maintained a consistent level of engagement in learning activities with their children between 2001 and 2005. This level of engagement was higher than the UEY-II average, although PMK engagement across the UEY-II communities rose substantially over the study period.

Table 4.11
Distribution of kindergarten children by literacy activities at home, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)

	Niagara Falls		UEY-II communities	
	2001	**2005**	**2001**	**2005**
How often is child read to?				
Daily	70.2	70.3	58.1	67.9
A few times a week	24.9	25.8	30.2	25.2
Once a week	3.0	2.7	5.5	3.1
A few times a month	0.8	0.5	2.4	1.8
Rarely	1.2	0.8	3.8	1.9
How often is child taught numbers?				
Daily	59.4	61.0	45.7	53.4
A few times a week	31.5	29.1	38.3	33.4
Once a week	5.2	5.3	7.7	6.3
A few times a month	2.0	2.0	3.7	2.3
Rarely	1.8	2.3	4.7	4.2
How often is child taught words?				
Daily	59.0	59.5	39.9	48.5
A few times a week	27.2	28.8	31.3	29.8
Once a week	4.6	6.9	8.3	7.2
A few times a month	3.0	1.4	4.6	3.0
Rarely	6.2	3.0	15.9	11.2
How often is child told stories?				
Daily	57.6	61.2	46.3	55.7
A few times a week	28.9	26.6	31.0	28.6
Once a week	6.2	7.4	8.6	6.6
A few times a month	3.5	2.4	5.7	4.4
Rarely	3.8	2.3	8.4	4.3
How often are songs sung with child?				
Daily	47.4	52.3	33.8	42.5
A few times a week	28.3	28.2	34.6	30.3
Once a week	12.6	7.2	12.1	11.2
A few times a month	4.6	3.8	7.2	5.7
Rarely	7.0	8.1	12.3	10.0
How often is child encouraged to use numbers?				
Daily	75.7	72.4	57.0	66.3
A few times a week	17.8	19.2	27.4	21.0
Once a week	1.2	3.6	4.7	4.2
A few times a month	2.0	1.4	3.1	2.3
Rarely	3.2	3.5	7.7	5.8
Total	100.0	100.0	100.0	100.0

4.3.4 Childcare arrangements

National data for Canada indicate that about half of children aged 0 to 5 years are in childcare while their parents are engaged in paid work or further education and training. For these children, non-parental childcare can be an important factor in their development.

According to Niagara Falls PMK, the proportion of children in childcare has been increasing in the community: between 2001 and 2005, the proportion of children in non-parental childcare rose from 44.5% to 54.8%, an increase of 23%. A similar trend was observed across the UEY-II communities, with the 2005 cohort of children being 20% more likely to be in non-parental childcare (46% in 2001 vs. 55% in 2005).

Table 4.12
Distribution of kindergarten children by main type of childcare arrangement, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)

	Niagara Falls		UEY-II communities	
Main type of childcare arrangement	**2001**	**2005**	**2001**	**2005**
Other's home – non-relative	22.8	16.6	23.9	27.4
Own home – non-relative	6.0	3.9	6.0	4.8
Other's home – relative	31.4	27.9	12.5	15.8
Own home – relative (non-sibling)	14.6	16.3	9.0	9.3
Own home – sibling	1.4	2.5	1.6	2.0
Daycare centre	21.4	23.2	11.4	11.5
Before/after-school programs	1.9	3.6	30.6	26.3
Nursery/preschool	-	0.3	3.1	1.2
Child in own care	-	3.5	0.5	0.6
Other	0.5	2.2	1.4	1.1
Total	100.0	100.0	100.0	100.0

As shown in Table 4.12, in Niagara Falls the most common type of non-parental childcare in both survey periods was care by a relative, either at home or outside the home: more than 40% of children who needed childcare were in this type of care arrangement. Care by a relative was followed by care by a non-relative, either at home or outside the home, although the percentage dropped from 28.8% in 2001 to 20.5% in 2005. Daycare centres were another popular form of care arrangement, attended by just over 20% of children in both 2001 and 2005. Between 2001 and 2005, there was a drop in the use of non-relative care and an increase in the use of daycare centres and before/after-school programs. The use of relatives to take care of young children remained fairly steady during the period. Generally, Niagara Falls children were much more likely to be in non-institutional care provided by relatives or non-relatives, with only one in four attending daycare centres, before/after-school programs or nursery/preschools.

4.4 Community: Neighbourhoods and Resources for Young Children

Neighbourhoods and communities provide important resources and activities such as daycare centres, schools, libraries and public pools, where children can play, learn and interact with adults and peers. Studies of the role of neighbourhoods and communities in child development indicate that both the social and physical characteristics of a community are important to a child's development. These characteristics include physical aspects relating to risk of injury or access to public facilities for children, neighbourhood/ community safety, neighbourhood resources, community cohesion, quality of role models, and residents' engagement in community activities.

4.4.1 Neighbourhood environment for young children

Table 4.13
PMK responses to questions regarding neighbourhood quality for raising young children, Niagara Falls and UEY-II communities (means, scale range: excellent [10] to poor [0], 2001 and 2005)

	Niagara Falls		UEY-II communities	
	2001	2005	2001	2005
Lots of families with children	6.2	6.6	6.4	6.5
Good schools, nursery schools	6.9	7.3	6.8	6.9
Adequate facilities for children	6.2	6.4	6.1	6.1
Neighbourhood safe and clean	7.0	7.2	6.4	6.6
Presence of health facilities	5.6	5.8	5.8	5.8
Actively involved residents	5.3	5.3	5.3	5.7
Accessible public transport	6.2	6.2	6.3	5.6

To assess the neighbourhood environment for children, PMK were asked about their perceptions of their neighbourhood as a good place to raise young children. They were asked to rate neighbourhood features such as the presence of many families with young children, quality of schools and nursery schools, adequacy of recreational and health facilities for children, level of residents' community involvement and access to public transport. PMK rated each of these neighbourhood features as "excellent," "very good," "good," "fair" or "poor."

Table 4.13 presents a summary of PMK responses to the questions on neighbourhood quality. The results show that Niagara Falls parents gave relatively higher scores to schools or nursery schools, neighbourhood safety and cleanliness, presence of many families with young children and access to public transport. Health facilities and the level of residents' involvement received relatively low scores. By and large, the neighbourhood scores of Niagara Falls PMK were similar to averages across the UEY-II sample. However, the score for neighbourhood safety and cleanliness was above the UEY-II norm.

PMK perceptions of neighbourhood safety and support from neighbours were explored in more detail. For example, PMK were asked to indicate their level of concern for their children's safety while walking and playing in the neighbourhood. They were also asked to respond to a separate group of questions regarding whether neighbours worked together to solve problems, helped one another, watched out for one another's children, and provided children with role models. Table 4.14 presents the results, with responses broadly grouped into positive or negative categories.

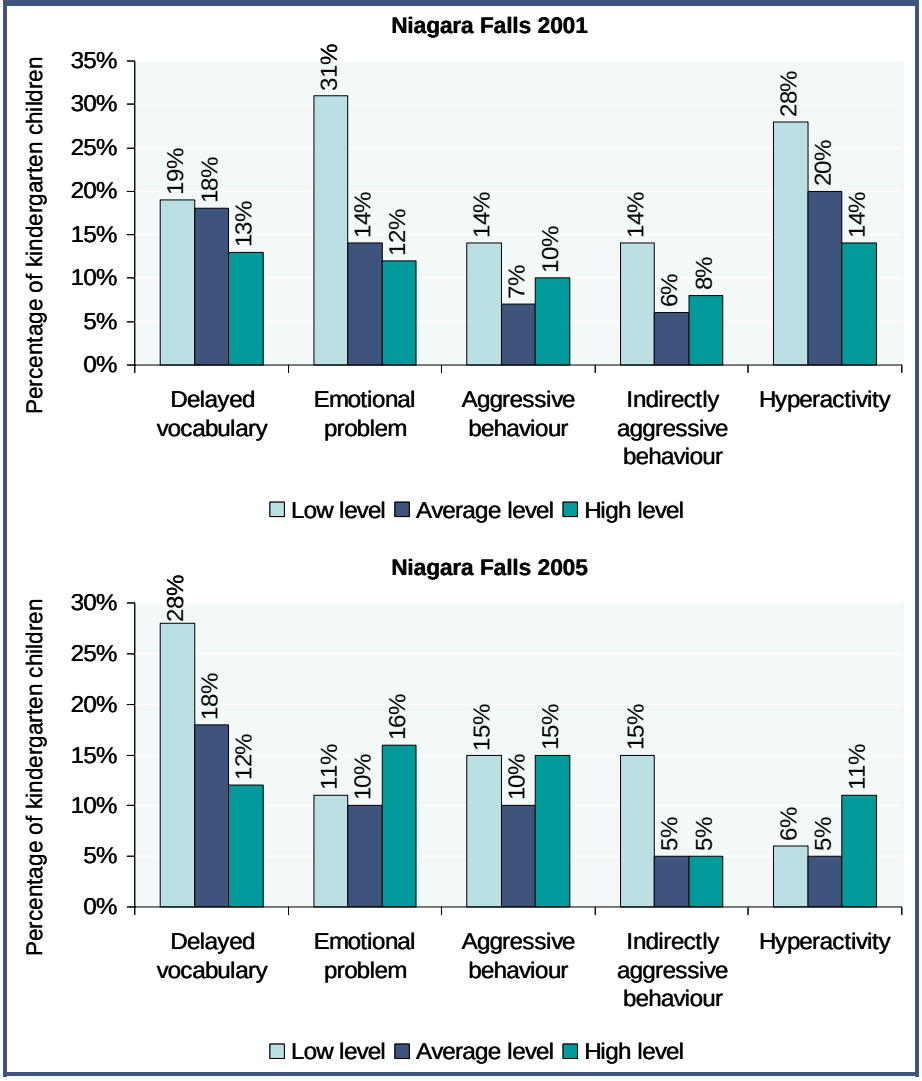
Table 4.14
Distribution of kindergarten children by PMK responses on neighbourhood safety and neighbour support, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)

	Niagara Falls		UEY-II communities	
	2001	**2005**	**2001**	**2005**
It is safe to walk after dark				
Strongly agree/agree	83.4	85.4	73.4	77.8
Strongly disagree/disagree	16.6	14.6	26.5	22.2
It is safe to play outside				
Strongly agree/agree	91.3	90.6	86.1	88.2
Strongly disagree/disagree	8.7	9.4	13.9	12.7
There are safe parks and play spaces				
Strongly agree/agree	87.6	86.6	84.3	84.7
Strongly disagree/disagree	12.4	13.4	15.6	15.4
Neighbours deal with problems together				
Strongly agree/agree	75.6	76.2	86.1	88.2
Strongly disagree/disagree	24.4	23.8	13.9	12.7
There are adults for children to look up to				
Strongly agree/agree	87.0	89.3	82.4	86.2
Strongly disagree/disagree	13.0	10.7	27.6	13.8
Neighbours are willing to help one another				
Strongly agree/agree	90.2	90.6	87.0	89.6
Strongly disagree/disagree	9.8	9.4	12.9	10.4
Neighbours watch out for children's safety				
Strongly agree/agree	89.1	88.1	84.4	89.6
Strongly disagree/disagree	10.9	11.9	15.6	10.4
Neighbours watch out for trouble				
Strongly agree/agree	91.8	90.4	84.5	88.0
Strongly disagree/disagree	8.2	9.6	15.5	12.1
Total	100.0	100.0	100.0	100.0

As Table 4.14 shows, in both 2001 and 2005, the majority (more than 80%) of Niagara Falls PMK – a higher proportion than that in the whole sample of UEY-II communities – agreed or strongly agreed that their neighbourhoods were safe for the children and that neighbours supported one another in a number of ways. However, one in four PMK did not agree that neighbours dealt with problems together, a higher proportion than the UEY-II average.

Figures 4.13 and 4.14 present results on the extent to which neighbourhood quality and social support were related to the developmental outcomes of Niagara Falls children.

Figure 4.13
Neighbourhood quality and developmental outcomes of kindergarten children, Niagara Falls (percentages, 2001 and 2005)

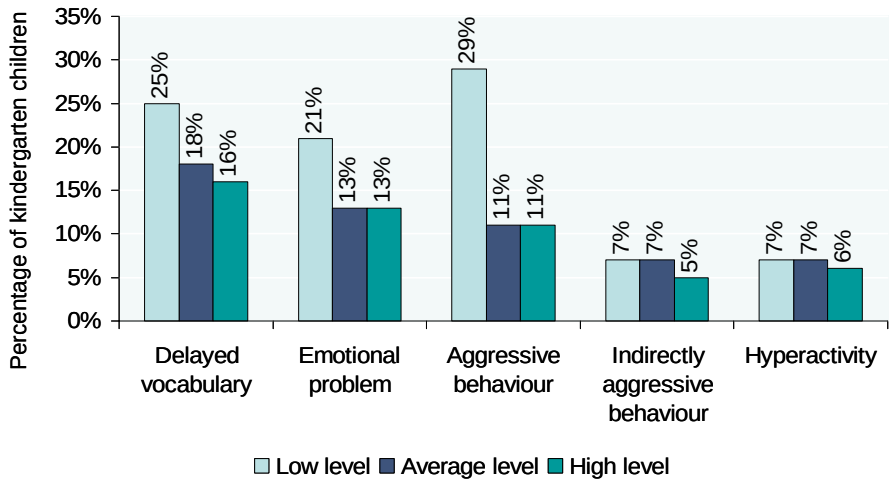


In Figure 4.13, Niagara Falls neighbourhoods are classified into three levels of quality – "low," "average" or "high" – based on the average scores and standard deviations across the UEY-II communities. As shown, the data for 2001 indicate that neighbourhood quality was strongly associated with children's emotional development and hyperactivity: Niagara Falls children living in high-quality neighbourhoods appeared to be much less vulnerable than others. Neighbourhood quality also appeared marginally related to children's vocabulary development and behaviours, including aggressive and indirectly aggressive behaviours.

The 2005 data provide further evidence that neighbourhood quality is related to vocabulary development and social behaviours. Moreover, they suggest that neighbourhood quality may have been a significant factor in vocabulary development.

The 2005 data also provide some evidence of a relationship between neighbourhood social support and child outcomes (Figure 4.14), particularly those relating to social behaviours, vocabulary development and emotional problems. Children in neighbourhoods with high levels of social support were much less likely to display aggressive behaviours and receive low PPVT-R scores. Neighbourhood social support may also have had some impact on emotional development.

Figure 4.14
Neighbourhood social support and developmental outcomes of kindergarten children, Niagara Falls (percentages, 2005)



4.4.2 Use of community resources

Young children can benefit from using neighbourhood resources that enable them to participate in various educational, cultural and recreational activities – activities that are believed to have important implications for their development. The following tables show the percentages of Niagara Falls kindergarten children making use of such resources.

Table 4.15a
Distribution of kindergarten children by use of educational resources, Niagara Falls (percentages, 2001 and 2005; figures for UEY-II communities in *italics*)

		At least weekly		At least monthly		A few times a year		Not at all	
Libraries									
	2001	81.9	*76.7*	15.2	*12.5*	2.4	*8.4*	-	*-*
	2005	79.9	*82.1*	17.3	*9.5*	2.3	*5.8*	-	*-*
Book clubs/reading programs									
	2001	16.0	*8.2*	11.2	*5.5*	12.7	*10.6*	60.1	*75.7*
	2005	18.1	*10.0*	9.7	*6.2*	13.4	*12.2*	58.8	*71.6*
Education or science centres									
	2001	0.2	*1.6*	4.7	*5.3*	35.9	*30.3*	59.2	*62.9*
	2005	0.6	*1.8*	2.7	*4.8*	32.1	*32.3*	64.6	*61.1*
Family resources centres									
	2001	7.1	*3.4*	5.6	*4.0*	10.5	*11.6*	76.8	*81.0*
	2005	4.5	*4.2*	6.9	*5.5*	17.4	*12.9*	71.1	*77.4*

Table 4.15a shows the rates of use of educational resources such as libraries, book clubs/reading programs, education or science centres, and family resources centres and drop-in programs. The data indicate that libraries and book clubs/reading programs were the most popular educational programs or services listed in the table. However, little more than a quarter of Niagara Falls children in both survey

years used book clubs/reading programs at least weekly or monthly. The rates of non-participation in educational resources (apart from libraries) were high: 60% to 70% of children did not use these resources at all throughout the year.

Table 4.15b
Distribution of kindergarten children by use of cultural resources, Niagara Falls
(percentages, 2001 and 2005; figures for UEY-II communities in *italics*)

		At least weekly		At least monthly		A few times a year		Not at all	
Movies									
	2001	1.8	*3.5*	26.2	*22.9*	59.7	*55.6*	12.3	*17.9*
	2005	1.7	*6.4*	25.6	*23.9*	57.3	*51.0*	15.5	*18.7*
Theatres or plays									
	2001	1.2	*0.9*	2.4	*6.2*	52.0	*52.1*	44.4	*40.8*
	2005	2.3	*1.5*	2.4	*5.3*	48.7	*51.2*	46.6	*41.9*
Museums									
	2001	0.8	*0.5*	4.7	*4.4*	55.9	*49.6*	38.6	*45.6*
	2005	0.6	*0.6*	5.0	*5.5*	54.2	*54.8*	40.2	*39.0*
Sports events									
	2001	13.5	*9.5*	12.3	*9.4*	39.7	*32.6*	34.4	*48.4*
	2005	14.1	*11.9*	11.4	*12.2*	37.9	*34.4*	36.5	*41.4*

Table 4.15b presents the percentages of Niagara Falls children using cultural resources such as movies, theatres, art museums and sports events. The data indicate that use rates for cultural resources were much higher than for educational resources. For example, in both 2001 and 2005, about 85% of Niagara Falls children went to the movies, and about 50% to 60% went to theatres, visited museums and watched spectator sports events. However, most children who used cultural resources used them only a few times a year.

In addition, the data indicate that non-use of cultural resources increased slightly in 2005 compared with 2001. For example, between 2001 and 2005, the proportion of Niagara Falls children who did not go to the movies rose from 12.3% to 15.5%, a 26% increase in the non-participation rate.

Table 4.15c
Distribution of kindergarten children by use of recreational resources, Niagara Falls (percentages, 2001 and 2005; figures for UEY-II communities in *italics*)

		At least weekly		At least monthly		A few times a year		Not at all	
Parks or play spaces									
	2001	67.0	*63.6*	17.3	*19.7*	12.7	*13.5*	3.0	*3.2*
	2005	69.7	*65.9*	19.7	*18.9*	8.4	*10.9*	2.1	*4.3*
Recreational/community centres									
	2001	20.3	*13.3*	17.3	*14.6*	25.6	*23.4*	36.7	*48.8*
	2005	18.8	*12.9*	11.0	*17.1*	26.6	*26.7*	43.6	*43.3*
Indoor, outdoor or wading pools									
	2001	48.2	*38.4*	18.5	*23.8*	23.8	*27.9*	9.4	*9.9*
	2005	45.6	*34.1*	19.7	*26.6*	25.2	*29.3*	9.5	*10.0*
Skating rinks									
	2001	26.2	*21.7*	13.9	*13.5*	26.2	*25.8*	33.8	*38.9*
	2005	24.8	*23.2*	13.4	*16.1*	18.5	*21.2*	43.3	*39.5*
National parks									
	2001	5.0	*4.0*	8.9	*7.5*	46.6	*51.5*	39.7	*37.0*
	2005	3.9	*4.9*	5.3	*9.5*	49.9	*55.8*	40.9	*29.9*

Table 4.15c displays the use rates for recreational facilities, which registered the highest use rates among the three types of community resources. Of the recreational facilities listed, parks or play spaces in Niagara Falls were the most popular, being used by about 70% of children at least weekly. The percentage of children playing in parks or play spaces was slightly higher in 2005 than 2001.

Pools, including indoor and outdoor facilities, were the next most popular venues for children; however, the proportion of Niagara Falls children using these resources at least weekly dropped by about 5% over the study period, from 48.2% in 2001 to 45.6% in 2005. About one third of Niagara Falls children (37.6%) used recreational/community centres at least weekly or monthly in 2001, but this fraction dropped to 29.8% in 2005, down 21%.

Table 4.16 shows children's weekly participation rates in organized and unorganized sports, organized physical activities with instruction, art or music lessons, and community clubs or leadership programs, such as Beavers and Sparks.

Table 4.16
Distribution of kindergarten children participating at least weekly in sports and recreational activities, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)

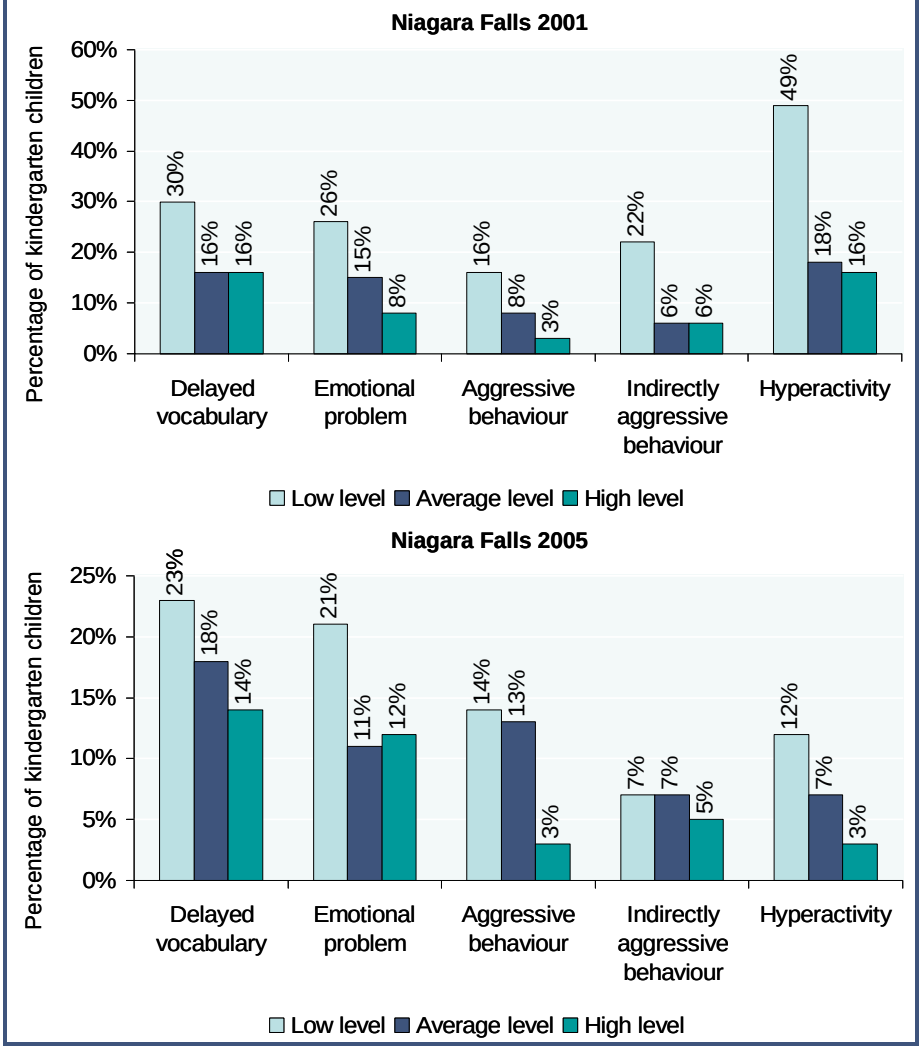
	Niagara Falls		UEY-II communities	
	2001	**2005**	**2001**	**2005**
Organized sports with coaching/instruction	47.8	48.2	47.8	48.2
Other organized activity with coaching/ instruction (e.g., dance, gymnastics or martial arts)	32.9	34.5	32.9	34.5
Unorganized sports or physical activity	68.2	68.5	68.2	68.5
Lessons in music, art or non-sport activity	15.3	15.5	15.3	15.5
Community clubs, groups or leadership programs (e.g., Beavers, Sparks)	24.6	20.7	24.6	20.7

In 2005, about 48% of Niagara Falls children participated in organized sports at least weekly, while the weekly participation rate for unorganized sports was as high as 68%. In addition, about one third of children were enrolled in dance, gymnastics or martial arts classes; 21% participated in community clubs or leadership programs; and about 15% took lessons in music or art. The results also show that between 2001 and 2005, participation in organized sports or other activities, as well as in unorganized sports and in music and art lessons, remained fairly steady, while participation in community leadership programs registered some decline.

Figure 4.15 presents results exploring the relationships between use of community resources and children's developmental outcomes. In these preliminary analyses, Niagara Falls children were classified into three groups: "low level," "average level" and "high level" users of community resources, based on an index created to indicate the extent to which a child used community resources, including educational, cultural and recreational resources.

As illustrated, the data from both 2001 and 2005 confirm a positive relationship between the level of community resource use and children's developmental outcomes. For instance, children in the high-level user group were much less likely than those in the low-level user group to receive low PPVT-R scores or display problem behaviours.

Figure 4.15
Use of community resources and developmental outcomes of kindergarten children, Niagara Falls (percentages, 2001 and 2005)



4.4.3 Accessibility of community resources and reasons for not using them

Table 4.17
Distribution of PMK confirming that community resources are within short distances (by walking, bus or car), Niagara Falls and UEY-II communities (percentages, 2001 and 2005)

	Niagara Falls		UEY-II communities	
	2001	2005	2001	2005
Educational resources	65.4	76.4	75.2	75.8
Cultural resources	49.4	61.2	58.7	57.9
Recreational resources	59.9	58.8	57.9	56.3

Given the relatively low level of community resource use, PMK were asked whether educational, cultural and recreational resources were located within walking distance or within a short drive or bus ride. The results, presented in Table 4.17, indicate that in 2001 access to recreational resources in Niagara Falls was similar to average levels across the UEY-II communities. However, access to educational and cultural resources was poorer. By 2005, the proportions of Niagara Falls PMK reporting good access to educational and cultural resources had increased by about 17% and 24%, respectively. Thus, in 2005, children in Niagara Falls had average access to educational resources among the UEY-II communities, while their access to cultural and recreational resources was slightly above average.

Perceptions of community resource accessibility, however, do not necessarily translate into family use of resources. For example, although more than 75% of PMK in Niagara Falls agreed that educational programs and services were nearby, only small proportions of Niagara Falls children used them on a weekly or monthly basis in 2005 (see Table 4.15a).

Many PMK reported that they had difficulties accessing community programs or services. The three most common reasons, cited in both 2001 and 2005, were “not enough time,” “program costs” and “program times not convenient” (see Table 4.18). According to the 2005 data, lack of time was mentioned by 46.5% of PMK, while program cost was cited by 38.4%; both percentages were up slightly from 2001. Between 2001 and 2005, “program times not convenient” rose from third to second most important barrier to the use of community resources. This barrier was cited by about 43% of PMK in 2005, compared with 36% in 2001, an increase of 18%. Overall, Niagara Falls appeared to have a higher proportion of PMK reporting major time and cost barriers than the average across the UEY-II communities.

Reasons for not using community programs and services can be grouped as follows:

- situational: those due to the parents’ circumstances in life, such as lack of time (because of work or family responsibilities) and health conditions;
- institutional: practices and procedures (on the part of service providers) that hinder participation, such as fees, program offerings, scheduling and accessibility; and
- dispositional: parents’ attitudes toward programs or services.

Compared with 2001, in 2005, slightly lower percentages of Niagara Falls PMK pointed to some institutional barriers – such as program costs, programs being available only for older children, and language barriers – as major reasons for not using programs or services available in the community. This may indicate that community service providers have been able to bring down some barriers to access by reducing fees associated with programs and services, creating new programs and expanding popular programs. However, it is also important to note that some institutional barriers remained high and some even increased during the study period. For example, program costs continued to be among the top three reasons for not making use of programs or services for children. Moreover, compared with 2001, markedly higher proportions of PMK in 2005 reported problems with program scheduling and space limitations as major barriers to using community resources.

Table 4.18 Reasons given by PMK for not using community programs or services, Niagara Falls and UEY-II communities (percentages, 2001 and 2005)				
	Niagara Falls		UEY-II communities	
	2001	2005	2001	2005
Situational				
Not enough time	43.5	46.5	41.0	41.6
Unaware of programs	31.5	32.9	23.8	29.7
Health reasons	4.6	3.9	3.1	3.2
Institutional				
Program costs	40.9	38.4	31.7	31.3
Program times not convenient	36.3	42.9	29.9	33.1
Programs available for older children	31.3	27.4	27.6	28.4
Programs of interest unavailable	13.2	11.0	13.4	17.6
Not enough spaces	9.6	12.8	7.5	9.0
Programs not in preferred language	2.6	0.8	2.8	2.4
Commute difficulty	18.1	19.2	15.9	18.2
Dispositional				
Concerned about safety	14.9	14.5	8.3	8.9
Concerned about quality	8.4	8.1	5.1	6.1
Cultural or religious reasons	0.2	1.4	1.1	3.1

As well, it should be noted that situational and institutional access barriers often combine to affect the use of community resources. For example, PMK who mentioned lack of time (a situational barrier) also tended to say programs were offered at inconvenient times (an institutional barrier). Addressing issues such as this will require a concerted effort on the part of all community members, both service providers and service users.

4.5 Summary

4.5.1 Young children in Niagara Falls

Results from the 2001 and 2005 data collection cycles of the Communities Survey indicate that Niagara Falls experienced some demographic changes among its kindergartener population. While the gender ratio remained unchanged over the study period (boys accounted for slightly more than half of kindergarten children), the percentage of children whose first language(s) did not include English or French almost doubled, up from 5% in 2001 to about 10% in 2005.

These demographic shifts may have contributed to some of the changes observed in the cognitive and behavioural outcomes of Niagara Falls children. Of those children whose first language was neither English nor French, 60% received low PPVT-R scores, compared with 13% of children whose mother tongue was English or French.

4.5.2 Characteristics of Niagara Falls families

The study results also indicate that changes took place in Niagara Falls children's families between 2001 and 2005. The average household income for children living in Niagara Falls increased by almost $4,000, yet one in five children were still living in low-income families, about the same rate recorded in 2001. However, the economic well-being of Niagara Falls children still compared favourably with the average level across the UEY-II communities: the proportion of children living below LICO increased by one third between 2001 and 2005, reaching 29%.

Family income was found to be associated not only with cognitive outcomes for Niagara Falls children but also with their participation in organized sports and other recreational activities that include instruction. For example, children from high-income families were almost three times as likely to participate in coached sports as children from low-income families.

PMK level of education has been steadily increasing in Niagara Falls, and by 2005, 45% had either a college diploma or university degree. At the same time, the proportion of PMK who had not completed secondary education declined from 12% in 2001 to 8% in 2005. While the study found that children of PMK who had not completed secondary education were more prone to delayed vocabulary development, some children from these families did develop advanced vocabulary skills. The majority (more than 75%) of Niagara Falls children had normal or advanced vocabulary skills at age 5.

Few changes took place in the labour market participation of PMK in Niagara Falls between 2001 and 2005. Compared with the average of the UEY-II communities, Niagara Falls PMK had a higher employment rate (73% vs. 68%), and more Niagara Falls children had parents who worked outside the home (86% vs. 82%). Parents' employment contributes toward family income, which can directly affect the resources available to spend on learning opportunities or activities for children. The study found that parental employment was significantly related to the cognitive and behavioural development of Niagara Falls children: considerably more children from no-earner families than other children received low PPVT-R scores and displayed aggressive behaviours and hyperactivity.

Family structures were also explored with respect to their influence on early years development. The 2005 data show that about 74% of Niagara Falls children were living in a two-parent family, compared with 71% in 2001. About 81% lived with one or more siblings in the home. Children in single-parent families were more likely than children in two-parent families to have delayed vocabulary scores and signs of problem behaviours.

4.5.3 Niagara Falls families: family processes

The vast majority of Niagara Falls children lived in families that functioned cohesively. Fewer than 1 in 10 lived in families considered less cohesive than the majority of UEY-II families. The study found that the outcomes of Niagara Falls children – on vocabulary skills, emotional development and social behaviours – were significantly associated with how family members worked together to solve problems.

Niagara Falls PMK performed better on positive and effective parenting measures than the average across the UEY-II communities, while their performance was close to the UEY-II average in terms of consistency and rationality. The study found that positive parenting was related more to children's emotional and behavioural development, while consistent parenting was related to most of the developmental outcomes discussed in this study – vocabulary skills, emotional problems, and aggressive and indirectly aggressive behaviours.

The vast majority (about 90%) of Niagara Falls PMK had been actively engaged in providing their children with a stimulating home environment – a higher level of engagement than the UEY-II average. About 9 in 10 read to their children, taught them numbers and helped them learn new words, either daily or at least a few times a week.

The percentage of Niagara Falls children in non-parental childcare increased from 45% in 2001 to 55% in 2005. The most common type of childcare arrangement was care by a relative either at home or outside the home, followed by non-relative care provided either at home or elsewhere. Daycare centres were the third most popular form of care arrangement, attended by 23% of Niagara Falls children who needed non-parental care in 2005.

4.5.4 Niagara Falls community: neighbourhoods and resources for young children

The majority (more than 80%) of PMK in Niagara Falls had favourable opinions of their neighbourhoods as places to bring up children. They were particularly positive about neighbourhood safety and cleanliness, and schools and nursery schools. They also liked the fact that the community had many families with young children and that neighbours supported one another in a number of ways. However, about one in four PMK did not think that neighbours cooperated to solve problems. The study confirmed that neighbourhood quality was associated with children's vocabulary skills, emotional development and

social behaviours. Children living in high-quality neighbourhoods were much less vulnerable in these areas of development than other groups. The study also found that neighbourhood social support was strongly associated with the cognitive, emotional and behavioural outcomes of Niagara Falls children.

More than 75% of PMK in Niagara Falls reported that educational resources were located nearby, and about 60% reported the same about recreational and cultural facilities in the community. These figures indicate that the children of this community had average access to educational resources among the UEY-II communities, while their access to cultural and recreational resources was slightly above the UEY-II average.

Despite the perception of resource availability, fewer than one in five children in Niagara Falls used community educational programs and services, apart from libraries, on a weekly or monthly basis. Book clubs/reading programs were the most popular of these educational resources. Higher proportions of children used the community's cultural resources, such as museums, theatres, musical performances, sports events and movies. However, most used these resources only a few times a year. Recreational facilities registered the highest rate of use among the three types of resources: about 70% of Niagara Falls children played in parks or play spaces at least weekly. Pools were the next most popular venues, used by about 46% of children weekly, followed by recreational and community centres.

The study results indicate that participation rates in organized and unorganized group activities were fairly stable between 2001 and 2005. Considerably more children in Niagara Falls participated in unorganized sports than in coached sports (69% vs. 48%) in both years. About one third were enrolled in dance, gymnastics or martial arts classes. Even fewer (about 15% to 16%) took music or arts classes on a weekly basis.

It is important to note that substantial numbers of children did not use the educational, cultural and recreational facilities available in the community. The top three reasons for non-use of these resources, reported by PMK in both 2001 and 2005, were lack of time, program costs and inconvenient program scheduling. A sizable proportion of PMK (about 30%) also mentioned that they were unaware of available programs or could not access these programs because they were only for older children or were oversubscribed.

5. Concluding Remarks

The Communities Survey collects information on a wide battery of child, family and neighbourhood characteristics for the Understanding the Early Years (UEY) communities through interviews with parents and direct assessments of children's cognitive skills. It thus enables us to explore relationships between children's developmental outcomes and various individual, family and community factors. This report has presented results from preliminary analyses of this rich database.

As discussed in Chapter 2 (and Appendix A), numerous studies have examined the relationships between young children's development and resources and processes within the family and community. Studies that analyzed the first round of data collected in the UEY pilot communities have also enriched the existing literature by exploring these relationships within Canadian communities.

Rather than merely corroborate the findings from these studies, a major thrust of the current study has been to discover whether any of the factors and processes affecting early childhood development changed in the community between 2001 and 2005. The other focus has been to assess whether any of these changes have influenced young children's developmental outcomes. Readers can interpret the data results and draw conclusions in light of their own community context, as well as in reference to the existing literature, including findings from previous studies at the UEY pilot sites.

However, results presented here that appear to reflect changes (or no changes) at the community level should be interpreted with caution for a number of reasons. First, the results are based on relatively small samples. Second, the sample of children (and their parents) who participated in the 2001 survey may have different demographic characteristics from those who participated in the 2005 survey. Third, as Willms (2003) points out, UEY was designed to include a broad range of measures so that communities could get a general profile of their young children. To measure change in this context, especially UEY's impact on child development, would require more accurate measurement tools and studies of longer duration. Fourth, the data analyses presented in this report are mostly based on simple, bilateral cross-tabulations. To verify the nature of the relationships between individual, family and community factors and children's developmental outcomes, as well as to infer causal relationships, would require more rigorous analyses, using complex statistical models, or experimental research.

This report has presented only a small proportion of information gathered using the Communities Survey. Much more information can be drawn from this wealth of data through further work designed to address questions such as:

- What are the key factors associated with various children's outcomes as well as with their participation in different activities at home and in the communities?
- How do these factors compare in the way they affect developmental outcomes?
- Do these impacts change as circumstances change?

With the data from the Communities Survey, it is also possible to determine who is more likely to report lack of time or program costs as barriers to use of community resources, who is more likely to use educational, recreational and cultural resources, and whether the profiles of children and their families using different kinds of resources differ.

However, because the Communities Survey was designed to provide a broad picture of the participating communities, it is not an ideal tool for gathering the sort of detailed information required for planning concrete community action. For example, the Communities Survey has helped us identify some of the barriers inhibiting access to early childhood programs and services available in the community. Yet it does not provide information on what barriers are associated with specific community programs or services, what kinds of programs or services parents are looking for but are not yet available, or what types of programs or services are avoided because of their costs. New community-based data collections may have to be initiated in order to acquire such specific information.

A more significant contribution of the Communities Survey may lie in the example it has set for the types of data that need to be collected and the types of data collection strategies that need to be adopted by the community. By presenting data from the Communities Survey, this report is helping the UEY initiative achieve its twin goals of providing community-specific information related to early childhood development and encouraging evidence-based decision making at the community level.

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Appendix A

Early Childhood Development: Findings from Research

The literature on early childhood development is vast. For the purposes of this study, this section provides an overview of studies that focus on four categories of developmental influences. These categories are individual child characteristics, family resources, family processes and opportunity structures. They are similar to the categories illustrated in Figure 2.1.

1 Individual Child Characteristics

Individual child characteristics refer to a child's biological attributes and to demographic characteristics such as gender and ethnic and cultural background. The emotional, cognitive and behavioural characteristics of the child – which not only influence developmental outcomes but are outcomes in themselves – are also considered in this category.

Gender

Research has identified gender as an important factor in developmental outcomes. On entering kindergarten, girls are generally slightly better than boys in reading skills and prosocial behaviour (i.e., behaviour intended to benefit others), are about the same as boys in mathematics and general knowledge, and are less likely to exhibit problem behaviours than boys (Maxwell & Clifford 2004). These gender differences are found in Canadian data (i.e., National Longitudinal Survey of Children and Youth – NLSCY) as well as in data from other countries including the United States, the United Kingdom and Australia.

Ethnicity, place of birth and first language

Children's ethnicity, place of birth and first language are also significant in explaining some differences among young children. For instance, a 2002 study (cited in Noble et al. 2005) found that African American, Hispanic and other children had lower math and reading skills at the beginning of kindergarten than Caucasian or Asian children. Another study found that racial disparities in school readiness are important and can be persistent (Noble et al. 2005). Worswick (2001) finds that Canadian children of immigrants whose first language is either English or French have especially high outcomes in reading and writing compared with those whose first language is neither English nor French.

However, having immigrant parents is not necessarily a risk indicator for psychiatric disorder or poor school performance (Munroe-Blum et al. 1988). Children of new immigrants, despite generally higher poverty rates, are less likely to have mental health problems than non-immigrant children (Beiser et al. 1998). Worswick's study (2001) also shows that immigrant children who initially perform poorly in Canadian schools can catch up with non-immigrant children in reading, writing and mathematics by age 13.

Social competence

Studies that have examined the social competence of young children (e.g., responsiveness, flexibility, empathy, caring, communication skills and sense of humour) find that these characteristics are very important in child development (Parrila et al. 2002). Prosocial skills result in improved health and well-being, greater participation in the community and active engagement in socially beneficial behaviours, such as sharing, offering help, cooperating, showing concern for others and promoting positive social relationships (Parrila et al. 2002:4). Conversely, antisocial or aggressive behaviour is often associated with negative developmental outcomes. A difficult temperament in infancy has also been linked to later emotional and social problems. For example, boys showing signs of antisocial behaviour in kindergarten were delinquent in adolescence (Bertrand 2001). In contrast, good-natured and obedient children are less likely to manifest behavioural problems such as hyperactivity, physical aggression and oppositional behaviour (Willms 2002).

Emotional development

Studies focusing on emotional development reveal that emotions can also help or hinder the growth of skills in children and are at the centre of children's lives. Emotions affect their sense of well-being, sense of self and understanding of the world (Daly 2004). Emotions provide the basis for human attachments and social interaction with others. Children do best when their self-esteem, self-confidence and self-reliance are nurtured, because "a confident, trusting child, secure in his belief in his own particular abilities and what it is that makes him unique, will play, concentrate, love, give and communicate better" (Daly 2004:23). As well, children with strong emotional skills are less often upset, are more relaxed, are more focused on tasks at hand, are more socially skilled, have fewer behavioural problems, and are in general better prepared for life and learning (Daly 2004).

2 Family Resources Factors

Socio-economic status

A major conclusion from childhood studies is that early childhood outcomes are strongly related to families' socio-economic status. As summarized by Bertrand, "from birth to death, higher socio-economic status is related to better academic achievement, lower rates of illness and even lower rates of accidents and suicides" (2001:4). The term "socio-economic status" refers to the relative position of a family or individual in society, based on access to or control over wealth, prestige and power (Willms 2000). In early childhood research, socio-economic status is often represented by a combination of factors including the family's income, the parents' level of education and their occupation.

Willms (2002) finds that children in high socio-economic status families are less likely than those in low socio-economic status families to score below national averages in vocabulary, mathematics, and motor and social skills. Results from other studies indicate that socio-economic status often affects other aspects of life such as the family environment. For example, it is related to the amount and quality of verbal interactions between parents and children, which ultimately affect children's language and cognitive development (Papalia et al. 2004).

Family income

Among the factors contributing to socio-economic status, family income has received the most attention in studies of child development. Hernandez (1993) emphasizes that the family income indicates the level of economic resources available to a child. Many studies find that family income and wealth are significantly associated with the health and educational performance of children.[7] Ross and Robert (1999) report that over 35% of children in low-income families exhibit delayed vocabulary development, compared with 10% of children in higher-income families. A study of American Indian families also showed that when family income is no longer below the poverty line, there is a significant reduction in behavioural symptoms of oppositional/defiant and conduct disorder (Willms n.d). A recent study by Phipps and Lethbridge (2006) also concluded that higher income is almost always associated with better outcomes for children, particularly cognitive and behavioural outcomes. These findings indicate that a large number of Canadian children face risks associated with low family income. For example, recent statistics from the NLSCY reveal that about 35% of Canadian children experience at least one low-income year, while 11% live in low-income families for at least 5 or 6 years (findings from three cycles of NLSCY data) (Phipps & Lethbridge 2006).

Parents' level of education

The parents' level of education also directly affects a child's health and educational outcomes: the higher the parents' education level, the higher the child's attainment tends to be.[8] Leibowitz (1974) argues that this is because educated parents are likely to spend more quality time with their children than less educated parents. More important, as Parcel and Menaghan (1994) suggest, parental education is perhaps one of the most significant factors affecting a child's developmental outcomes because education reflects the knowledge, experience and aspirations that parents bring to their children.

[7] For instance, Sewell and Hauser (1975), Cornia (1984), Haveman and Wolfe (1994), Hill and O'Neill (1994), Lipman et al. (1994) and Dooley et al. (1998).
[8] See Haveman and Wolfe (1995) for a review of these studies.

Parents' labour market participation

The parents' employment and work schedule have also been shown to directly affect a child's health and educational outcomes. Hoffman (1989) explains that parents in dual-earner families place more emphasis than other parents on independence training for children. The research finds that independence is a beneficial characteristic when children are involved in learning activities (Thomas 2006).

Parents' health

Parents' health, especially the mother's physical and emotional health, can affect the amount and quality of time and attention that parents devote to their children. Since time and attention are instrumental in the healthy development of children, parents affected by depression or addictions will likely negatively impact a child's development. Willms supports this view, explaining that "mothers suffering from post-partum depression can adversely affect the quality of maternal-infant interactions, resulting in poorer social and cognitive developmental outcomes" (n.d.:11). Significant levels of parental depression, especially maternal depression, also increase a child's tendency to develop anxiety and behavioural problems (Landy & Tam 1998). Gerhardt expands on this finding by explaining how mothers who drink, take recreational drugs and have poor eating habits affect their children's stress response, making them overly fussy or temperamental (2004).

The health of the mother also directly affects the health and educational outcomes of her child. For example, children born to healthy mothers tend to have higher birth weights and, as a result, experience fewer health problems (Barrera 1990). Graham (1972) and Schultz (1987) also report that children of healthy mothers are healthier than children of unhealthy mothers. Poor parental mental health has been identified as a risk factor for psychiatric disturbances in immigrant and refugee children (McCloskey & Locke 1995; Mghir et al. 1995).

Family structure

Studies find that single-parent families, families suffering marital breakdown, families in which the mother gave birth at a young age, and large families with little social support can negatively affect early childhood development. Kohen et al. (1998) and Willms (2002), for example, find that behavioural problems in children are related to many factors including female-headed households, large households and younger maternal age. Willms (2002) also finds that children who live in single-parent families are more likely to have behavioural problems than children who live with teenaged mothers but who have a second parental figure. Additionally, the risk of intellectual delays, as well as mental, emotional or physical health problems, increases for children aged 4 to 11 years who live in single-parent or adolescent-parent homes (Landy & Tam 1998).

Family size affects children's developmental outcomes because siblings compete for the limited time and financial resources of their parents. The larger the number of siblings, the less parental time and money there are for each child (Becker & Tomes 1976). In particular, as Hanushek (1987) suggests, private time spent with individual children, which is necessary to a child's development, decreases as family size increases. However, Hernandez (1989, 1993) argues that siblings who grow up in a large family can share the companionship of childhood, and this can influence childhood development in a positive way.

A number of studies find that single-parent status can have a significant negative impact on children's educational attainment.[9] Krein and Beller (1988) find that this negative effect increases with the number of years spent in this type of family structure, and the impact is greater for boys than girls. Other studies find that single-parent status is strongly associated with psychiatric disorders, poor school performance and social problems.[10] Also, because single parents often have to survive on only one income, they are likely to face more challenges and stress in raising their children (HRSDC and Healthy Manitoba 2003). Children living in single-parent families thus tend to be exposed to more parental stress and, as a result, may feel more distressed, depressed, fearful, sad, rejected and worried than children who live with two parents (Judith et al. 1980, 1989).

[9] Blau and Duncan (1967), Freeman (1974), Featherman and Hauser (1978), Haveman et al. (1991), Sandefur et al. (1992) and McLanahan and Sandefur (1994).
[10] Dooley and Lipman (1996), Curtis et al. (1996), Dooley et al. (1998) and Curtis et al. (2004).

A mother's age at the birth of her child is associated with the child's developmental outcomes, including health and cognitive skills (Shariff & Ahn 1995; Hill & O'Neill 1994). The older the mother at childbirth, the better the child's developmental outcomes (Dahinten & Willms 2002), with children of adolescent mothers showing less favourable outcomes in most aspects of development. This may be because teenaged mothers tend to have lower socio-economic status and are more likely to raise their children as single parents. According to Parcel and Menaghan (1994), it may also reflect the fact that a mother's maturity, sense of control and patience, which affect child development, all tend to increase with age.

3 Family Processes Factors

The family has tremendous influence on the healthy development of children. It is where children spend the majority of their time, especially in the first 5 years of life, and where they learn skills, values and attitudes that will help them participate in society and build self-esteem (Canadian Council on Social Development 2006).

Parent–child interactions

Research shows that the most important family processes include parenting style (the ways in which parents interact with their children), the cohesiveness of the family and the extent to which children are regularly engaged in learning activities (Willms 2003; Phipps & Lethbridge 2006). These factors help protect children from the impact of low socio-economic status and may explain why not all children in low-income families are unhealthy and not all children in middle- to high-income families are healthy.

Specifically, studies consistently indicate that positive and authoritarian parenting – by parents who are firm but loving and who set realistic standards as well as clear and consistent rules for their children – is related to better developmental outcomes in health, social competence, academic achievement, school completion, and emotional and behavioural development (Patterson et al. 1989; Chao & Willms 1998; Hoghughi 1998; Landy & Tam 1998; Ross et al. 1998; Feinstein & Symons 1999; Miller et al. 2002; Papalia et al. 2004). On the other hand, Kagan (1994) and Beiser et al. (1998) find that poor parenting (uncaring on the one hand or overprotective on the other) is strongly related to children's emotional and behavioural problems, sometimes more so than other family characteristics. A study by Landy and Tam (1998) finds that parenting practices are crucial to the development of at-risk children, such as those with a teenaged mother or those in a single-parent family, a dysfunctional family or a family with less social support.

Family cohesion

Research has shown that family cohesion is another important factor affecting healthy child development. Family cohesion refers to how well family members communicate with each other, work together, and how well family members function as a unit. Positive family functioning can help mitigate the influence of other factors in child development, such as family income and family structure (Schaffer 1998). In Canada, while the majority of children grow up in families that are functioning well, there is a small percentage who do not. (Human Resources and Development Canada and Statistics Canada 2000-2001). Children living in dysfunctional families are about 35% more likely to display signs of problematic behaviour such as aggression or difficult temperament than their counterparts living in families that are functioning well (Racine, Y. and Boyle, M. 2002). This relationship between family functioning and behaviour problems is particularly evident when examining the display of signs associated with aggressive behaviours, such as getting into fights, kicking, biting and/or destroying belongings.

Parents' level of engagement

Parents who are highly engaged with their children have a major influence on their children's development (Rutter 1990). Parental attention during a child's early years – specifically, the extent to which the parent is emotionally available – is particularly crucial to development (Gerhardt 2004). Furthermore, studies find that the time parents spend reading to their children has a significant impact on the children's development regardless of the family's socio-economic status (Willms 2003; FSU Center for Prevention and Early Intervention Policy 2005).

4 Opportunity Structures: Neighbourhood and Community Factors

As an African proverb says, “it takes an entire village to raise a child.” Researchers also point out that children’s “readiness for school success is a community responsibility, not just the responsibility of parents and preschool teachers” (Maxwell & Clifford 2004:2).

It is true that neighbourhoods and communities have always been at the centre of the learning and developmental activities of young children. They provide opportunities for children to play, learn, and interact with adults and peers by providing important resources and activities such as daycare, schools, libraries, public pools and parenting groups. However, research on community effects has been limited until recently (Connor & Brink 1999). The important role of the community in the development of young children is just beginning to be recognized and explored.

A general conclusion from studies of the role of communities in child development is that both the physical and social characteristics of a community are important (Jencks & Mayer 1990; Canadian Institute for Health Information 2006). These characteristics include physical conditions relating to the risk of injury to children, access to public facilities for children, neighbourhood/community safety (e.g., crime rates), neighbourhood affluence/resources, quality of childcare and schools, community cohesion, quality of role models, participation in community activities and the community’s willingness to intervene for the common good (Connor & Brink 1999; Curtis et al. 2004; Hertzman & Kohen 2003; Canadian Institute for Health Information 2006).

Neighbourhood affluence

Studies find that neighbourhood affluence is an important community characteristic. Affluent communities often have more resources and opportunities for young children and their families. Hertzman and Kohen (2003) find that a neighbourhood with plentiful resources promotes child well-being by providing stimulating activities. Specifically, their study finds that affluent neighbourhoods can have a positive effect on children’s IQ scores and verbal abilities. Another study (Canadian Institute for Health Information 2006) finds that neighbourhood affluence has a significant impact on children’s health, even after the effects of parental income, demographic characteristics and health factors are taken into account.. Willms also concludes that “children’s development is more likely to flourish if families have access to educational, cultural and recreational resources: These are important not only because they contribute directly to children’s development, but also because they foster social support and increase social capital within the community” (2003:34).

Childcare quality

Childcare is second in importance to the family as the place where most early childhood development occurs, and over the years there has been an increasing reliance on childcare by non-relatives (Shonkoff & Phillips 2000). The quality of childcare is thus an important factor in the overall quality of community educational resources. Quality in childcare is defined by the types of interactions between children and care providers, resources within the care environment and the types of activities children are engaged in while in care.

The influence of childcare on child development can be positive or negative, depending on the quality of care (Friendly et al. n.d.). Studies find that children attending high-quality care tend to be more confident and self-regulated, while those attending low-quality care tend to be less cooperative and exhibit more behavioural problems (Doherty 1991; Connor & Brink 1999; Gagné 2003). High-quality childcare can also protect children against the effects of negative family experiences (Shonkoff & Phillips 2000) or low socio-economic status. A study by Raver and Knitze (2002:13) finds that low-income children in high-quality childcare are significantly better off, cognitively and emotionally, than similar children in poor-quality settings. In general, children attending centre-based care demonstrate higher cognitive and language outcomes and a higher level of school readiness than children in other types of settings (Connor & Brink 1999; O’Brien et al. 1994; Lipps & Yiptong 1999).

School environment

Schools are an integral part of any community. Since children spend a great deal of time in school, their experiences there can have a major impact on their overall well-being. This impact is so profound that it has been claimed that education is key to children's capacity development (Canadian Council on Social Development n.d. B).

A number of factors influence a child's success in school. For instance, research has shown that successful children are those who were nurtured or stimulated prior to entering school. Within the school setting, it is how teachers interact with children that ultimately affects children's social and emotional outcomes (Raver & Knitze 2002). This interaction in turn can be affected by the way children behave. Children who act in antisocial ways tend to be less accepted by classmates and teachers, and receive less instruction and positive feedback (Raver & Knitze 2002). Teachers themselves can also perpetuate high levels of misbehaviour from children by ignoring problem behaviours or dealing too harshly with them (Raver & Knitze 2002).

There are 10 key ways that schools and/or communities can assist childhood development (Maxwell & Clifford 2004:2).

- Smooth the transition between home and school.
- Strive for continuity between early care and education programs and elementary schools.
- Help children learn and make sense of their world.
- Make a commitment to every child's success.
- Show they are committed to every teacher's success.
- Introduce and expand strategies that have been shown to improve achievement.
- Function as learning organizations that change their practices if they do not help children.
- Serve children in communities.
- Take responsibility for results.
- Maintain strong leadership.

Community cohesion

Cohesive communities – those whose members are well connected and identify strongly with the community – have an important positive influence on child development and contribute to improved outcomes (Canadian Council on Social Development 2006). These communities offer parents and children an opportunity to interact with one another and with other families to share information, reduce uncertainty and lessen parental anxiety (Moore 2005). Children who grow up in this type of environment tend to be more prosocial. As Parrila et al. note, "parents that rated their neighbours as better role models or as more supportive or helpful tended to rate their children as more prosocial" (2002:35). Wilson (1987) also finds that neighbours' socio-economic status, educational level and performance, and values can influence children's ambition and drive.

Social support

Research also shows that neighbourhoods that have high levels of engagement and are willing to intervene for the common good tend to be better places to raise children. This is because "(a) the high local expectations for informal social control and mutual support of children allow child surveillance and other parenting tasks to be shared with neighbours, and (b) parents are linked to each other through their participation in community activities, including organized worship and support of local schools" (Jones et al. 2002:7). In contrast, an absence of community networks often results in family isolation, lower levels of trust between neighbours and lack of political mobilization, all of which can lead to fewer amenities (Jones et al. 2002).

Peer interactions

Children's peers are another important element in child development. They are part of the process of growing up and help children learn how to interact with others. Establishing relationships with others is one of the most important developmental tasks of early childhood, and the preschool years are a time when social skills expand dramatically. The socialization process is so important during this stage of life that "the success with which young children accomplish this objective can affect whether they will walk pathways to competence or deviance as they move into middle childhood and adolescent years" (Shonkoff & Phillips 2000:180). Socialization teaches children the standards and values of society and allows them to become integrated into their larger social world (Daly 2004).

At 9 to 12 months of age, infants begin to watch other people, thus starting the socialization process (Shonkoff & Phillips 2000). Attachments developed early in life can lay the foundation for later social relationships and happiness. As Daly states, "no one can become fully human without social experiences" (2004:134). Close friendships have been linked to better social and academic outcomes (Canadian Council on Social Development 2006). Friendships also increase self-esteem and feelings of self-worth (Daly 2004). On the other hand, being rejected as a child is related to psychiatric problems and poor academic achievement (Shonkoff & Phillips 2000). However, it is not close friendships in themselves that are important to healthy development; these friendships have to be with prosocial peers.

5 UEY Findings on Neighbourhood and Community Factors

At the core of the Understanding the Early Years (UEY) research is an intent to discover the relative importance of individual, family and community factors in the development of young children and their readiness to learn. The purpose is to provide communities with critical insights into what actions might be most effective in further improving children's outcomes.

The results from the UEY pilot sites show that schools with the best average school population scores – assessed using the Early Development Instrument (EDI) – tend to be located in neighbourhoods with few socio-economic risk factors, while those with poorer average school population scores are often in the higher-risk areas. However, the spatial distribution of outcomes does not entirely match socio-economic status patterns. The average school population score in several low-risk neighbourhoods is unexpectedly low on all components of development assessed using the EDI, while the average school population score in some higher-risk neighbourhoods is high on many of the components of development. This observation indicates that many children in relatively poor areas are faring quite well compared with some children in affluent areas.

Analyses of the unique roles of the community in children's developmental outcomes identified a number of community characteristics as being more important than others. They include neighbourhood quality and safety, the length of time residents live in the community (i.e., neighbourhood stability), social support (from family members and friends), social capital (support available collectively to groups within a community) and access to and use of community resources.

A general finding is that different community characteristics have an impact on different aspects of child development. For example, children in families receiving a high level of social support are less likely to be at risk in the cognitive domain, and living in a neighbourhood with a high level of social capital is associated with an increase in positive behavioural outcomes. As well, children living in neighbourhoods that contain many families with children are more likely to be well behaved, possibly because of the opportunities for social interaction.

Better outcomes are also seen in children who are more involved in their communities through their use of libraries, book clubs and educational centres, as well as those whose parents are involved in voluntary organizations. For example, families that make use of recreational, educational and leisure facilities have children with better cognitive scores. Vocabulary development is influenced by children's use of community educational resources such as libraries, book clubs, literacy programs, educational centres or workshops. Other factors affecting vocabulary development are parental use of family and parent resource centres, as well as the mother's education and the child's knowledge of English. On the other hand, children of families who feel they encounter many barriers to participation in community programs and services achieve lower scores on learning assessments.

The UEY study data show that the average use of community resources is rather low, at 3.4 on a 10-point scale, even though about 70% of parents reported that most educational resources are within walking distance or are a short drive or bus ride away. About 50% said the same with respect to community cultural and recreational resources. The North York study, for one, found that participation rates in community educational resources, recreation centres and organized sports seem to be associated with family characteristics: mothers' educational level, household income, and parental employment, first language and immigrant status.

According to parents, the biggest barriers to using community resources are time, program costs and lack of knowledge about the availability of programs and services. However, barriers may also include physical and social obstacles. The effects of barriers are identifiable and cumulative, and pose a real problem for many families: the more barriers a family faces, the more likely their children are to experience problems.

The UEY findings suggest that the extent to which a community can promote developmental opportunities for young children is determined by both the nature of its offerings and its commitment to ensuring their availability. Just as important as the availability of the programs is the community's effort to ensure a sense of community and promote the message that opportunities are available to all children and families. The findings emphasize the need to promote social interaction and integration within a community, raise awareness about the importance and availability of community resources, ensure that resources are available and address access barriers.

In summary, the family has an extremely important role to play in a child's development. Research indicates that "during the pre-school years, the important [family] factors are parenting skills, the cohesiveness of the family unit, the mental health of the mother, and the extent to which parents engage with their children, especially in reading to the child" (Willms n.d.:30). Furthermore, although demographic characteristics of the family – such as household income and parental education and employment – play an important role in development, there are strong effects associated with approaches to parenting, engagement in the community, use of resources, neighbourhood social capital and social support that are independent of family demographics (Willms 2005:25).