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How Children Express their Competence through Narrative: An Examination of Environmental Risk, Competence, and Narrative Ability in a Group of Low-Income Preschool Children.

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ABSTRACT

How Children Express their Resilience through Narrative: An Examination of Environmental Risk, Competence, and Narrative Ability in a Group of Low-Income Preschool Children

Lisa Fiorentino

The present study examined the issues of environment risk, competence, and narrative ability in a group of low-income preschool children. Current developmental research has examined the factors that promote resilience or competence in young children's lives and one way this has been explored is through the narrative ability of children. Twenty-five children from lower socio-economic backgrounds who attended day care participated in the study. The participants were assessed for their level of environmental risk and competence and were asked to complete stories based on everyday household events. Each story was coded for the amount of information units, level of chronology, and level of organization. It was found that children who had lower levels of competence generated narratives that lacked both chronology and organization. The level of environmental risk did not appear to be related to competence and narrative ability. The relationship between competence and narrative ability is discussed as an important issue in the day care and future school environment.

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Statement of the Problem

When we think of children, we hope the lives they lead are fun-filled and relatively stress free. In the current period though, this is not always possible. In fact, children are presented with many stressors that make optimal child development difficult. One environment with multiple stressors is the low-income environment.

Living in poverty is a multi-risk experience where children may be faced with many difficulties that they may or may not be developmentally ready for. Living in a low-income environment may increase children's levels of vulnerability, which may be expressed through low levels of cognitive, social, and emotional development. It may also translate into poor academic performance. Despite the risks found in poverty, there are some children who seem to be resilient to poverty's ill-effects and even exhibit normal levels of cognitive, social, and emotional development.

There are many ways to explore children's level of resilience or competence, and one of the most interesting is through the narrative ability of children. It has been found that one way to deal with the stresses experienced is to be able to make sense of and articulate an understanding of one's life situation. In other words, by engaging in storytelling we may demonstrate levels of coping. The present study brings together these three research areas: namely (a) poverty, (b) vulnerability and resilience/competence, and (c) narrative ability. Levels of environmental risk, general

competence, and narrative ability in a group of low-income preschool children were investigated. Children were assessed for the level of environmental risk they experience, their level of readiness to learn and general competence, and their narrative ability. It was expected that children who lived in homes with higher environmental risk would be more likely to have lower levels of competence. As well, children who had lower levels of competence were expected to generate narratives that were both quantitatively and qualitatively different from children who had higher levels of resilience.

In the present thesis, an introduction to the cycle of poverty is given. In particular, children living in poverty are evaluated, for this environment has been associated with an increase in children's levels of vulnerability. The concept of resilience/competence is defined and also the research that explores factors that lead to childhood resilience despite environmental stress is examined. Finally, the issue of narratives and the importance they hold in our lives is described. Narrative ability is one way to examine children's levels of resilience. The hypotheses based on the literature are stated as well as the methodology used to examine them. Finally the results of the research are discussed in relation to the topics of vulnerability and general competence, readiness to learn, and narrative ability.

Poverty and Childhood: The Need for Resilience

Ideally, childhood is a time of exploration and excitement where children receive the care and support required to develop to their full potential. Unfortunately, this ideal vision of childhood is rarely a reality. In today's world, many children are living in situations associated with developmental impediments that promote stress in their young lives. One such situation is the life of poverty.

The following section introduces what the life of poverty is like for children. Living in poverty exposes children to various levels of economic and perhaps emotional hardship at various levels too. The stresses and risks associated with poverty can have a negative impact on child development; thus exploring these environmental influences provides some insight into why many children growing up in poverty demonstrate lower levels of cognitive, behavioral, and health competence. In sum, these environmental influences have been associated with increased levels of vulnerability in children.

Living in poverty. Poverty is a serious problem in North America. As per a survey by Statistics Canada (1997) and the Children's Defense Fund (1992), 19.8% of Canadian children and 22% of American children are living in impoverished environments. Poverty is a multi-risk situation where children are exposed to more vulnerable circumstances than, for example, a higher socio-economic environment. Living in poverty increases the chance of maternal difficulties during pregnancy, which can lead to high-risk births such as children born with low birth weights or cognitive delays (Masten & Garmezy, as cited in Garmezy, 1991). As they grow older, low-income children are more likely to be exposed to a number of stressful life events such as violence, poor living conditions, and frequent changes in residence (McLoyd, 1998). Furthermore, it is difficult for the economically poor to improve their situation when they may perceive a lack of control in their lives and have limited personal and financial resources (Gallagher, 1991). Children can handle stress in their lives; but when this stress is persistent (as a life of poverty can be) and compounded with other stresses (hence poverty's multi-risk situation), it becomes more difficult for children to rise above their circumstances and reach their developmental potential (Hetherington, 1984). Hence,

poverty can be a negative experience for children since their environments may have many risks and it is difficult to escape their impact.

In order to have a better understanding of the effect the environment has on children, we should examine the various contexts that affect them. Each of these contexts may alone or in conjunction with other contexts have an effect on children's development. The following explores these contextual influences.

The environment: An ecological approach and contextual overview.

Children, whether living in poverty or not, are part of many contexts. From an ecological standpoint, each context has an effect on the child and could potentially decrease or increase a child's resilience.

The environments closest to the child are the microsystem and the mesosystem (Bronfenbrenner, 1979). The microsystem can be defined as any immediate setting or settings in which the child participates. A child's family environment and school environment would be examples of microsystems. In both of these examples, the environment is in direct contact with the child. The next closest context to the child is the mesosystem, which is defined as the relationships between microsystems. An example of a mesosystem is the relationship parents have with the school community (each of which is a microsystem). Both of these contexts potentially have strong implications for the child, but their interactions may not involve the child directly.

The remaining two environments also involve the child, though in an indirect manner. The exosystem consists of settings that indirectly affect the development of the child. A school board is one such exosystem. Here, the child does not directly interact with the members of a school board, but the decisions made by the school board have

direct and indirect ramifications on the school life of the child. The final environment to be discussed is the macrosystem. Macrosystems involve broad, demographic, and institutional patterns of a particular culture or subculture (Garbarino, 1990). Macrosystems refer to the ideology behind aspects of the society at large. The ideology a culture places on the low socio-economic status community would be one example.

Children are a part of many environments. The ecological perspective focuses not only on the many contexts children are a part of, but the interactions between these environments. Furthermore, children are not passive participants in their environments; they have an effect on the environments they live in. Research has looked at elements within these contexts and it has been found that when certain conditions in the environment exist, children are more likely to demonstrate decreased resilience, or vulnerability. The following section is an introduction to the concept of vulnerability and the negative impact poverty has on child development.

What is Vulnerability?

The term, vulnerability, has been used to describe children who are less resilient to their life circumstances. Vulnerability is defined as a state of susceptibility towards someone or something whereas resilience has been termed as the capacity of individuals exposed to risk factors to overcome these risks and avoid negative outcomes (Werner, in Meisels & Shonkoff, 1990; Rak & Patterson, 1996). Each child has his or her own unique level of vulnerability; thus two children may react differently to the same maladaptive situation (such as a lack of food or poor caretaking). Individual differences in vulnerability can be found in infancy and later childhood. For example, the issue of temperament in infancy has been explored and it has been demonstrated that an infant

with a difficult temperament often has a lower level of adaptability (Thomas & Chess, 1977). Rutter (1985) found that a "difficult and unadaptable child" often elicits criticism and hostility from the caregiver, which in turn does not help the child cope with his/her environment. An infant's lack of interest in his/her environment has also been established as related to a smaller repertoire of life skills and strategies and vice versa (Devos, 1989). In terms of older children, often levels of adaptability are a reflection of children's developmental level (Masten & Garmezy, as cited in Clapp, 1988).

Since children vary in their level of vulnerability, individual differences in children are important to explore. But individual differences do not explain all of variance associated with vulnerability. The environment is another example that has an important impact on child development. The proceeding section is an examination of the environmental factors that alone, or in interaction with individual characteristics, may discourage resilience and contribute to a more vulnerable child.

The home environment. The child's home environment can be associated with increased vulnerability (and therefore less resilience). Research has shown that a family environment without proper nutrition and characterized by over-crowded conditions may be associated with increased levels of vulnerability in children. Shonkoff and Marshall (1990) discuss the fact that when severe calorie and protein deprivation occur during prenatal and early childhood, mental retardation and behavioral disorders are more frequent and their outcomes more likely to be irreversible. Meisels and Shonkoff (1990) conclude that inadequate nutrition during the brain's imperative growth spurts (i.e., between birth and two years, and between ages 3-4 years) adversely affects intellectual, activity, and attention levels.

There is also research regarding the effects of an overcrowded household. Overcrowded households have been associated with an increase in the relative risk of children developing future developmental difficulties. Osborn (1990) studied the 5- and 10-year follow-ups of English, Scottish, and Welsh children participating in the Child Health and Education Study. Using three cognitive tests and four behavioral assessments, he created a Competency Index. From the Competency Index, Osborn evaluated the relative risk of children who were the most vulnerable by comparing their risk to particular variables to the overall sample of children. He found that when there were more than four siblings in the household, relative risk increased. Bradley et al. (1994) also found similar results. Using the Home Inventory, the NeoNatal Health Index, as well as various cognitive measures, Bradley et al. found that when home density increased, so did vulnerability or risk. In fact, most of the children living in high-density homes had more than seven people living in a 5-room household. In sum, if a household lacks essential elements for child development (such as nutrition), which may prevent the child from excelling developmentally (as an overcrowded household may cause), these children may have increased levels of vulnerability.

Caregiver environment. The stress that invades the family may be associated with an increase in the vulnerability of children. Like their children, caregivers may be in an extremely stressful situation. To live in poverty means that one is unable to provide for one's family the way one would like to; basic necessities such as food and clothing may be difficult to obtain. As well, each family member deals with stress differently (Hetherington, 1984). This complicates the coping abilities of the family as a whole, since each member may not cope in comparable ways.

Parental characteristics as well as the type of interactions caregivers have with their children may also increase the vulnerability of children. Parents may play a large role in their child's development. In one study, Osborn (1990) explored the level of competency in a cohort of children who were a part of a large longitudinal study. The children were assessed for familial demographics, school performance, cognitive, and behavioral development. Osborn was interested in what circumstances reduced the risk of children developing behavioral and academic problems later in life. He found that if the age of the mother was 25 years or less and if she was diagnosed as depressed, the vulnerability of children increased. It appears that the children of young mothers with these characteristics were less likely to be considered competent or exceptional in terms of cognitive and behavioral development. As well, it was found that the lack of both parents in the home when the child was 5-years-old was associated with an increased level of vulnerability in children.

The interactions between caregiver and child also impact on childhood vulnerability; in part research has found that how parents behave and react to their child has an effect on the child's level of competency. Caregivers and their children are not always a perfect match. For example, parents who are highly energetic individuals may give birth to a child whose temperament is rather low-key and passive. In a case where a match between caregiver(s) and child is not ideal, problems may arise if the parents are unable to bridge the gap between themselves and the child. In other words, the parent(s) must be able to adapt to the behaviors of the child. This helps the child because the child learns that he or she is in a warm and supportive environment; in other words the family unit becomes a secure base from which the child can grow and explore the world. Demos

(1989) and a team of researchers looked at parent-child interactions and found that when parents were unable to display empathic understanding of their child and make the necessary adjustments to their child's behavior, the child's chances for resilience were very slim. More often than not, these children were more likely to withdraw from interactions and display developmental delays and difficulties. In this case, parental interactions were associated with increased child vulnerability.

There is also the case where the demands placed on children were inappropriate for the parent-child relationship. For example, some children are placed into adult roles too soon. This is seen when children play adult roles in the parent-child relationship. Some children become best friends, or confidants to their parents. These children are exposed to information about their parents and their current situation that they may not be prepared for or be able to understand. Children need to make sense of the stress that surrounds them. If adults are not "...able to take charge and present a role model of calm positive determinism" (Garbarino, 1995, p. 433), children may be unable to make sense of their experiences and thus may be more vulnerable and susceptible to trauma (Garbarino, 1995). This is associated with children who are more vulnerable to their life experience and react negatively to experiences in their life. This vulnerability is displayed in the children's poor performance on various cognitive and competency measures.

The previous section addressed the home environment and caregiver characteristics, which are only two microsystems that have been associated with an increase in children's vulnerability. Other environments that have an impact on children are the day care and school environments.

Day care and school environment. The quality of the day care and school environments has been proven to impact on children's developmental performance and level of vulnerability. In both of these environments, the quality and the belief systems of the institutions may affect children's levels of competency and thus vulnerability. Furthermore, these outcomes are not short-term in nature and there are long-term effects. Unfortunately, not all day cares and schools offer high quality care/academics with ideal teacher-child ratio, and proper materials. If the low SES child is attending a low quality day care, he or she is more likely to suffer intellectually (Burchinal, Lee, & Ramey, 1989; Burchinal et al., 1996).

Researchers have found that attending early childhood day care may facilitate cognitive and social development. O'Brien, Caughy, DiPietro, and Strobino (1994) looked at a group of children who were a part of the National Longitudinal Survey of Youth. The children and their families were given numerous interviews, demographic, and cognitive measures starting from when the children were 60-83 months up until 5-6 years of age. Children from low-income environments who attended a day care during the first three years of life had better developed mathematic and reading skills as compared to children who did not attend day care when they were ages five and six. In fact, it was found that attending day care before their second birthday was strongly related to early elementary reading skill ability. Other researchers have also found similar results. Hagekull and Bohlin (1995) explored the long-term effects of day care quality as well as child and family characteristics on socioemotional development. The researchers measured day care quality using the Early Childhood Environmental Rating Scale and measured child characteristics using behavioral questionnaires, externalizing

and internalizing behavioral scales, and a measure of positive socioemotional behavior. The researchers found that high quality day care predicted fewer social withdrawal problems and greater ego strength at four years of age. Vandell, Henderson, and Wilson (1988) compared high and low quality day cares in terms of associations with children's social development. They measured children's levels of social development through observations of their free play at age four years, a triadic play session at age eight, and a demographic/peer relationship, compliance, task orientation, and an emotional well being questionnaire completed by the mothers. The researchers demonstrated that 8-year-old children who attended poor quality day cares had greater behavioral problems than the children who attended higher quality day care did. At age four, these children had more problematic development and at age eight they directed fewer friendly and more unfriendly interactions during the triadic play session (see also Gullo & Burton, 1993).

The long-term effects of pre-kindergarten experience, such as attending a preschool have also been explored. Wright (1983) examined the long-term effects of the University of Western Ontario (UWO) Preschool Project. This project focused on children's cognitive and social development. Wright compared children who attended the program for one or two years. She found that low SES children who attended the UWO Preschool for two years demonstrated greater intellectual, cognitive, and self-management skills than low SES children who attended for only one year. When these children were followed up in grade three, it was found that both groups of children maintained intellectual, cognitive, and academic achievement (as compared to a control group of low SES children without prior preschool experience).

It is therefore apparent that high quality day care is an environment, which is positively associated with children's development, particularly for children from low SES backgrounds. The school environment has also been looked at, as the long-term effects of high quality day care have been found to be related to higher school performance in the primary grades (see Sameroff & Fiese, 1990). Gorman and Pollit (1996) studied a group of children from a rural area who were found to be a high-risk population (high-risk was defined using biological indicators, preschool cognition, and social structure information). They compared these results in relation to primary school grades and adolescent psychoeducational test performance. It was found that children who were considered to be high-risk were buffered from poor academic performance by staying in school. These high-risk children performed better as compared to their high-risk counterparts who stayed in primary school for fewer than four years. Low-income children have also been found to benefit academically and socially when they participated in a formal after-school program as compared to maternal care only, informal adult supervision, and self-care (Posner & Vandel, 1994). It seems that these children benefited from school programs that offered high quality after-school programs.

The quality of the day care and school environment has an effect on children's development, and that these effects are seen as children get older. The day care and school environments are two important microsystems that the children are a part, but there is also a broader context in which children live. The community environment and, in particular, the beliefs the community holds have an effect on low-income children's level of vulnerability and future success.

The community environment. There are also community factors that may be associated with children's vulnerability. Since poverty is a multi-risk situation, the community environment is prone to as many such risks; it is not only the children who suffer. Ideally, we would hope that the adults in this environment (i.e., parents, relatives, teachers, and counsellors) would be able to take care of the children and help them make sense of their experiences. Instead, adults too are affected by the issues surrounding living in poverty, which makes it difficult for them to create 'safe haven' homes and schools for children (Garbarino, 1995). Children may be aware that their lifestyle is inferior to the middle-class lifestyle. For everyone in this situation, it is difficult to see beyond one's circumstances and be hopeful about a better life (Rycraft, 1990). Thus many individuals in the community, including the children, are at risk for low competence, developmental difficulties, and lower school performance and thus may be prone to increased levels of vulnerability.

On a more global level, the poverty experience has become a subculture that is segregated from the mainstream middle and upper class milieus. Children are perceptive, and those living in poverty become privy to the fact that their lifestyle is not on par with the upper or middle class. They may be left feeling inferior; it is as though reaching beyond their lower class boundaries is impossible. In time, these children adjust to this way of life and in fact, may have difficulty recognizing opportunities that could potentially ameliorate the situation (Rycraft, 1990). Simply put, it becomes difficult to fathom the possibility of a better life and many children are less likely to take advantage of opportunities that could improve their situation. This sentiment, along with other variables (such as poor living conditions and a lack of verbal stimulation in the home),

contribute to the transgenerational model of poverty where generations of families have difficulty breaking the cycle of poverty (Garmezy, 1991). When children see their parents and community struggle through poverty, it is difficult to believe that they can transcend it.

Summary. Poverty is a multi-risk experience because children are exposed to various situations that may be associated with cognitive, social, and general competence difficulties in young children. Since children are a part of many environments, there are critical factors in these environments that have an effect on children's level of vulnerability. Increased vulnerability is associated with households that are insufficient and caregivers that are unable to provide children with sufficient attention and stimulation. On a broader level, the day care/school and community environment that is poor in quality and lacks support for the family may also not facilitate children's successes in life. Though children have levels of vulnerability, so too there are also levels of resiliency that can be fostered. The following section is a discussion of the role of resiliency in low-income children's lives and how it can be encouraged in children living in poverty.

Resiliency in Childhood

Clearly, poverty is a serious problem in North America, particularly for children. Many elements in this environment have a negative effect on children's levels of vulnerability. Elements in the home, interactions with their caregiver(s), and the school environment may contribute negatively to children's development. Research has shown that children have lower developmental scores on cognitive, social, and general competence measures. Due to individual as well as environment influences, children

have various levels of vulnerability. Yet there is also a level of adaptability or resilience, that is the ability to overcome the risks they are exposed to and avoid negative outcomes (Rak & Patterson, 1996; Serbin & Stack, 1998). The literature on resilience varies greatly. While some define resilience as a child's level of adaptability and success, others define it as simply the child's ability to cope. Resilience can also come from many sources. While some believe that children have individual biological predispositions to be more (or less) resilient, others contend children may also learn how to develop certain skills and abilities to help them better cope with their situation(s). Furthermore, others focus on the different contexts as effecting children's levels of resiliency.

What is resiliency and how is it fostered in children? A growing number of research studies are focused on which personality and environmental traits help children living in poverty thrive despite their adverse circumstances. This branch of research is called resilience (see Luthar, Cicchetti, & Becker, 2000 for a critical evaluation on resilience). Though relatively new, the research on resilience in children has conceptualized resilience in various ways.

Resiliency research began in the 1970's. Prior to that, a great deal of research focused on the vulnerability of children and less on what sustains children despite adversity. Originally, children who were resilient were called invulnerable, but this term has since been changed to the terms stress-resistant and resilient. Anthony (1974) was one of the first to put forth an analogy on resiliency. He presented three dolls; the first doll, made of glass, shattered upon being hit. To Anthony, this doll represented a child that was extremely vulnerable to her/his situation with no chance of thriving in the environment. The second doll, made of plastic, became dented when struck. This doll

demonstrated that the child was able to survive the circumstances but was scarred or damaged for life. The final doll was made of steel and when struck, only the sound of being struck was heard; this doll was representative of the resilient child. This child, though not completely invulnerable, was able to thrive despite his/her circumstances.

Researchers have also created models to explain how resilience or protective factors work together to aid a child who has the potential to become vulnerable or resilient. Garmezy, Masten, and Tellegen (1984) presented three different mechanisms to explain resilience in children. In the first, the compensation model, stress factors and individual traits are combined in an additive fashion to predict a child's outcome. In this scenario, a child 's stressful condition may be counter-balanced by personal attributes such as familial support. The second is the challenge model where stress is actually seen as a promoter of competence as long as the stress is not in excess. In this situation, the relationship between stress and competence is curvilinear. The final model that Garmezy et al. put forth is the immunity model. In this model, the relationship between stress and competence is conditional. In other words, there may be factors that reduce the stressors, but these factors may have no impact on the child when the stress is not present. The relationship between adversity and resiliency varies from child to child. For this reason, it is difficult to pin point exactly which model best explains the relationship between adversity and resiliency. The researchers concede this, and stress that these models may operate simultaneously or in succession depending upon the coping abilities and the developmental stage of the individual.

The current definition of resilience in children is defined as the capacity of those exposed to risk factors to overcome these risks and avoid negative outcomes (Rak &

Patterson, 1996). For children living in poverty, this refers to their ability to thrive and succeed despite the multi-risk environment around them that can stifle their development. This may include, among other things, a moderate to high level of developmental functioning and exceptional school performance. For the purpose of this thesis, resiliency will be defined as: (a) a measure of performing at the child's developmentally appropriate level; and (b) a demonstration of a successful level of readiness to learn.

Resiliency has been studied across the developmental spectrum. From infancy to adulthood, the factors that contribute to an individual's resilience have been explored. We will begin with a look at the individual and personality traits of children that have been associated with resilience.

Resiliency within the Child

From an early age, certain personality traits are inherent or developed in children to help them thrive. Longitudinal research has been conducted, which followed families living in poverty and studied children on a variety of factors from birth to adulthood. Werner et al. (1971) conducted the Kauai Longitudinal Study, which followed a group of children who were exposed to four or more risk factors in their life (e.g., poverty and malnutrition). Werner and her colleagues discovered that despite the dire circumstances, some of the children were highly resilient. As infants, these individuals were healthy, happy, and affectionate. They were also able to express themselves and elicit positive attention from their caregivers. In childhood, their high energy levels and high adaptability enabled them to make transitions easily if their life situation changed (see also, Werner, 1990). Bradley et al. (1994) assessed 223 children at 12 and 36 months of age who were living in high-risk conditions. These high-risk conditions included pre

term birth, low birth weight, and living in poverty. The researchers found that 12% of the children studied could be classified as resilient. This classification was based on high health scores on the Neonatal Health Index that classified them as resilient individuals.

As resilient children mature to school age, they are likely to develop into independent, active, and inquisitive individuals. Resilient children tend to be alert, self confident and autonomous. In the classroom environment, these children are effective communicators and problem solvers (Werner, 1971). On the playground, they are extremely social and vigorous players, are well-liked, and are able to use a variety of coping strategies such as a sense of humor in social situations (Masten, 1986). Probably it is these kinds of traits that help these children do well in their environment and thrive despite their circumstances.

Individual personality characteristics play a role in children's resilience levels. These children appear to be born with highly adaptable and easygoing temperaments and grow into independent and self-confident individuals. Though these individual characteristics are important, children do not act alone. There are many variables in the child's environment that contribute to her/his individual level of resilience. Specifically the effect of caregivers, family and community members, and day cares and schools are explored as sources of resilience for children of poverty.

Resiliency and the Environment

Primary caregivers. A stable and supportive caregiver(s) promotes resilience in children living in poverty. Having the chance to bond with one adult who is able to provide stable care may have a strong impact on a child. Some researchers (see Clapp, 1988) stress the importance of environmental continuity in a child's life. In a vulnerable

situation such as poverty, this cannot be guaranteed. Children can experience multiple moves, different schools, and the task of making new friends. For this reason, an attachment figure becomes a source of continuity and support in the child's life (Masten et al., 1999).

An important caregiving trait that promotes resilience in poor children is the parent's ability to be empathic to the child's needs. Shonkoff and Meisels (1990) stress that the relationship between caregiver and child is reciprocal in nature. Both parent and child respond to one another 's actions. Some caregiver-child pairs are extremely reciprocal. This makes the relationship/attachment more stable. Other caregiver/child pairs are more divergent in nature. In cases such as these, it is important that the caregiver is sensitive to the child's needs and is able to perceive and interpret their child's behaviors. This allows for an appropriate response by the parent and a more harmonious relationship. Demos (1989) writes that "...a flexible parent manages to find alternate solutions (that) convey both the child's initiative and (that the child's) affective investment are respected..." (p. 8). Not only do primary caregivers need to be empathic; they also need to be strong, supportive role models.

Caregivers also need to create safe, stimulating, and supportive environments for children. A safe environment is one that has both warmth and structure. Masten and Coatsworth (1998), in their review of the literature, argue that resilience is fostered in North American children when parents are warm yet give structure to their child's life. In fact, it has been found that the more dangerous (or increased risk) the environment, the more likely it is that resilient children will have stricter parents who also exhibit warmth. A stimulating environment also effects child development. For example, Walker et al.

(1994) looked at the relationship between family environment and language development. Children were measured for language development at 7 and 36 months and it was found that the language spoken at home was a key predictor of later school outcomes. They concluded that the early language experiences spoken at home contribute to later deficits. In fact, resilient children more often have parents with a higher education than vulnerable children (Wyman et al., 1999). Parents that promote a model of calm, positive determinism (Garbarino, 1995) may give children a fighting chance in their environment.

Besides primary caregivers, alternate caregivers can be a source of support, because they can contribute financial and emotional help, communication, and overall support. For example, grandparents who act as caregivers are able to contribute to resilience. Meisels and Shonkoff (1990) found grandparents to be an important predictor of secure attachment in children, which is positively related to resilience in children.

Just as primary and alternate caregivers act as protective factors for children of poverty, another environment that is supportive for children is the preschool and school environment. The teachers, materials, and programs in this environment can act as a form of intervention for children and promote resilience, providing they are of high quality. The following explores the importance of high-quality day care and schools for low SES children. Schools can be a source of resilience and a place where children (and their families) learn, develop, and receive support.

The day care and school environment. High-quality day care may give children who live in poverty a jump-start in future academic endeavour since higher quality day care is associated with improved developmental outcomes. McCartney et al. (1985)

compared the social and cognitive competence of disadvantaged children in high quality care as compared to advantaged children in low quality care. The researchers found that caregivers of the disadvantaged children in high quality care rated the children as having higher language skills and more considerate social behaviors.

Day cares have also been looked at as a form of intervention for children (Williams, 1998). Williams believed that day care can be a form of intervention for children who do not come from more advantaged environments. She stressed that day cares exhibiting: (a) high ratings on global indicators of quality (such as high scores on the ECERS-Early Childhood Environmental Rating Scale); (b) regulatable indicators of quality (for example, caregiver-child ratios and group size); and (c) effective caregiver-child interactions (such as developmentally appropriate behaviors and verbal stimulation) may provide children with a head start when they enter school. Moreover, these 'head start' results may not be short-term (though the research in this area is not clear-cut).

It is not only children who may benefit from day care. High-quality day care may be also a form of intervention for the family. The impact day care quality and home environment quality have on aspects of child development has been studied (Burchinal et al. 1995; Burchinal, Lee, & Ramey, 1989). It has also been found that day cares can serve as a model and as a form of social support for parents. For instance, child care workers may provide parents with child care support and information (particularly for the parents' own child). Day care workers can provide information about child development and child rearing practices and may serve as models for appropriate child-caregiver interactions (Williams, 1998). Thus, the child benefits directly from high quality day care, whereas the parents may benefit indirectly through the support and information they

receive. High quality care can help children from disadvantaged environments prepare for the school milieu.

As the children move from the day care environment to the elementary school environment, associations between resilience and school performance have been studied (see Posner & Vandel, 1994). The experiences in the school environment may circumvent the many stressors that are part of low SES children's lives. Garmezy (1991) found that schools have traits that promote protective factors because good quality schools exert a positive influence. High quality schools have faculties that promote the use of incentives and rewards, have a coherent organization, have an academic focus, and have prosocial attitudes (to name a few). Good teachers become role models and support systems for these children. If schools have these qualities, they may become a safe haven for children, which encourage and challenge children at the same time.

Summary. Children living in poverty are vulnerable to the many risks involved in this environment. We hope that these children will develop personality traits and/or will have resources in their life that will encourage individual resilience, thus promoting their development. Garbarino (1995) wrote that traumas arise in children when they are unable to give meaning to their experience. By acknowledging the reality children in poverty face, one must also recognize that adversity does not always win. Children can be resilient against poverty; the work done in the home, community, school, and in intervention programs such as high quality child care move us one step closer to lowering the vulnerability of children in poverty. Narrative is another way resilience may be observed in low SES children.

Narrative

Children living in poverty may have experiences that are detrimental to their development and thus may increase their level of vulnerability. Having an increased level of vulnerability has an effect on children's school performance. There are many children living in poverty who come into the school environment ill-prepared for the experience (as compared to their middle class classmates) and demonstrate poor academic and social competence.

While there is literature that suggests some children may be vulnerable to their experiences in poverty, researchers have found that some children are less vulnerable to these negative circumstances. As noted previously, the body of literature on resilience is vast since resilience has been defined and explored in varied ways. However, a relatively new and exciting way to explore resiliency is through the narratives that children generate.

In addition to cognitive, social, and coping ability, children also demonstrate their level of resiliency through their narrative ability. Whether at home or at school children hear and exchange stories. For example, within the classroom environment teachers tell stories to convey academic concepts while children also tell stories to express their thoughts and feelings to others. Stories include rhymes, songs, or the traditional storybook; stories are also the personal oral and written narratives of children. Through storytelling, children learn how to make sense of their environment and surroundings. If a child living in poverty is able to make sense of her/his environment, he or she may be better able to deal with the difficulties facing her/his life and therefore demonstrate an augmented level of adaptability or coping of the situation.

The following section examines the literature on narrative. We will begin with a definition of narrative for the purpose of this proposal. We will then proceed to show how narratives help children make sense of their lives and help them cope with adversity. As well, there is a body of literature regarding the narratives of children who come from more impoverished environments. In brief, it has been found that many of these children produce narratives that are different from their middle and higher SES counterparts in both theme/content and structure, which has been associated with performance (for example, cognitive and social) in the classroom environment.

What are stories? Stories can be defined as any sort of narrative that a child is engaged in and can be read, spoken, or sung by or to children. When we think of stories, we often think of traditional children's stories that consist of a plot, a protagonist, and (usually) a happy ending (Egan 1986, cited in Ward, 1997). Stories can also include conversations, class lessons and poetry, and are often viewed as building blocks for future literacy (Ward, 1997)

Stories can exist on many different levels (Kelly-Byrne, 1989; Engel, 1999) as children engage in different forms of storytelling at home, at school and in their neighborhood. For example, Sutton-Smith (1981) and Opie and Opie (1959) examined the stories that children generate in the classroom and during recess. Sutton-Smith observed young children's stories of verse (quote p. 48 "The cat went on the cakies, the cat went on the car, the cookie was in my nose...") and older children's stories of plot (quote p.121 "There was a father that had a little girl that's name was Sally. They had a duck pond. Once the little girl went out to the duck pond to see the ducks and she saw one little duck that was lost. And she took it home and she lives happily ever after").

Opie and Opie observed stories such as rhymes, making bargains, and telling secrets while on the playground. As one can see, stories come in various forms. For the purpose of this proposal, narratives will be defined as stories that children are asked to create after particular questions or scenarios are presented to them.

Narratives have also been studied with various age groups (see Sutton-Smith, 1981). In the classroom environment, elementary and junior high children's narratives have been studied for their positive effects on children in that environment. For example, Goldberg and Phillips (1992) demonstrated how engaging in storytelling affects language development in the classroom. They observed a grade one and two classroom where a teacher introduced poetry to the children. Her program allowed children the opportunity to read, understand, and write poetry. The act of reading and creating poetry is considered partaking in storytelling since each poem communicates feelings, emotions, states of mind, etc. The classroom teacher encouraged the children to discover their inner voices and reflect on words to explain their feelings. This was associated with the children's ability to pay more attention to language than was typically encouraged in the grade one and two classroom, thereby increasing the children's knowledge of language. VanSledright and Brophy (1992) also looked at narrative in an elementary classroom and found that grade four children had the cognitive abilities to create historical stories, despite lacking a knowledge base of history (history class for these children did not begin until grade 5). These children were able to incorporate their limited history knowledge into stories that flowed and were logical.

Narratives may also have an impact on adolescent populations. Masten (1986) examined the relationship between humor and competence in children in grades 5, 6, 7,

and 8. She examined children's production of humor by having the children complete captions for cartoon characters (Masten also measured humor comprehension through other measures). She found that children who constructed creative humor captions (as well as displayed a level of humor comprehension) had better academic and social competence in the classroom. Academic competence was assessed using the WISC-R and the PIAT; social competence was assessed through teacher ratings of classroom behavior (also see Page & Bretherton, 1994, for research on children demonstrating their level of competence through the narratives they generate). Thus, exploring how children understand or make sense of their lives through stories is an important area to study. The psychiatrist Robert Coles (1989) illuminates this point beautifully in his book, *The Call of Stories*. Robert Coles showed that stories provide means of identification for children who are experiencing duress. When a child reads a story that parallels some of the issues he or she is going through, the child may feel less alone in her/his predicament and may cope better. In one example, Coles learned how stories changed the outlook of a young boy of 15 suffering from polio. The boy, Phil, was miserable, angry, and resentful of a future that meant a lost adolescence spent in hospitals and could include paralysis. In the face of all of this, Phil withdrew from the world, however his life took on a different outlook when he received the Mark Twain's, '*Huckleberry Finn*' as a gift.

Phil says:

> ...I decided to pick up that book...I flipped through the pages, and then I started reading it, and I didn't want to stop...when I was done with the story, I felt different. It's hard to say what I mean. I can't tell you, I can't explain what

happened...I had some good talks with them...I talked with those guys and they straightened me out, (p.35-36).

The story of Huckleberry Finn could not have come at a better time for this young man. He was able to identify with the story's characters, and he came out of the experience with a greater ability to cope with the situation that he was facing.

Younger children's narratives have also been studied. For example, Umiker-Sebeok (1979) analyzed spontaneous narratives that occurred between children during a natural conversation. Children from three to five years of age participated in the study and it was found that there were age-related differences in elements of the narrative. For example, as children got older the length, number, variety, and complexity of the narratives increased. Considerable growth occurred between the ages of three and five; most notably it was found that the amount and sophistication of the information increased for preschoolers. More recently, Kilpatrick (1993) stressed that narratives are important for children of all ages because they are a source of education for the children, particularly for the transmittance of values and morals. Thus, children as young as preschool-age create narratives that contain important information and they can comprehend and learn from narratives. The focus of this proposal is on the narrative abilities of preschool children since it has been shown that these groups of children do demonstrate individual differences in the ability to generate narratives that may be associated with their performance in the classroom.

In sum, narratives are an everyday part of children's lives. Children hear and produce narratives with different individuals in their life such as family members and friends. Narratives are important in children's lives, particularly in dealing with life

experiences. This is explored in the following section; specifically narratives demonstrate how children make sense of their lives in adaptive and maladaptive ways.

Narratives and Meaning-making

Through narratives, children can make sense and derive meaning from experiences in their lives. Wells (1986) termed this process 'making meaning'. In essence, children are able to sort through the information that is placed in front of them and derive their own coherent narrative to make sense of what is going on around them. Some children are very effective at this, whereas others have difficulty and may demonstrate more maladaptive coping patterns. For example, Page and Bretherton (1994) explored how preschool children of divorced parents portrayed their mothers and fathers when generating story responses. Using the Attachment Story Completion Task as well as story stems from the MacArthur Story Stem Battery, the researchers videotaped children's narratives and coded them according to 92 behavior categories and a modification of Mary Ainsworth's typology of secure, avoidant and ambivalent stories. The behavior categories were coded according to nine categories dealing with issues such as parent-to-child behavior, child-to-parent behavior, and family interaction. First, the authors found that having children generate stories was an effective way to gain insight into children's perceptions of family dynamics. Second, children whose stories were classified as ambivalent (as coded by Ainsworth's typology) demonstrated high disrespect for their mothers on the Attachment Story Completion Task. Third, children whose stories were labelled secure included positive behaviors (within the generated stories) for both mother and father (child respect for mothers was in fact the highest in the secure group). Further research has been done on familial narrative and representation.

Bastion et al. (1999) explored the links between family factors and children's representation. Children completed a variation of the Storytelling Assessment of Representations (based upon the MacArthur Story Stem Battery), while parents completed questionnaires regarding parenting style, parental depression, and their child's level of psychological adjustment. The researchers found that the children who were exposed to higher levels of negative family functioning represented their family relations in a less cogent manner. As well, these children were also more likely to demonstrate negative behaviors such as aggression during the acting out of the story (through the use of puppets).

The narratives that children generate have also been linked to the types of externalizing behaviors children exhibit. Oppenheim et al. (1997) asked 4- and 5-year-olds to generate narratives with maternal representation. These representations were labelled as positive, negative, or disciplinary and were then related to children and maternal socioemotional adaptation (using the Child Behavior Checklist and the Brief Symptom Inventory for maternal psychological distress). The researchers found that children who represented their mothers in narratives as generally positive, disciplinary, and less negative had fewer behavioral problems and their mothers reported fewer incidences of psychological stress. Related to this research, Leibowitz et al. (1999) examined the relationship between children's security of attachment, their attachment narratives, and the level of parent-child communication. Forty-four preschoolers completed a separation anxiety test where the children generated narratives based on separation dilemmas. The children's parents also completed a questionnaire assessing their child's level of attachment. Finally, both parent and child together completed an

emotion communication task to assess the level of family emotional communication. Relationships were found between children's discussion of attachment related themes in their narratives and child-parent communication. Specifically, children who spoke coherently about affective attachment themes with their caregivers had higher attachment and lower avoidance scores in their separation narratives. As well, children who used more emotion words during parent-child discussions were more self-reliant and less avoidant in their narratives on separation. Thus, children demonstrate comprehension of the situation and this was reflected in their narratives, positive behaviors, and interactions with others.

In sum, the previous studies have demonstrated that narratives can play an important role in understanding how children make sense and organize the information they are exposed to during their daily lives. While this research has explored children who are considered to be developmentally normal and from socio-economically stable households, there has also been research that has focused on the child who does not come from an affluent household and who has had negative life experiences. The following section explores some research that has been done on children from less affluent households (i.e., low-income).

Narrative Ability and Poverty

Research on the narratives of children living in low SES families has found that these children may differ in narrative ability as compared to their higher SES counterparts. Peterson (1994) investigated the narrative skills of 4-year-old children. Three groups of children were evaluated: group 1 consisted of preschoolers from a middle class family, whereas groups 2 and 3 were low SES children whose parents were

on social assistance. Of the two groups from economically disadvantaged homes, one group of children was deemed by caseworkers to be living in disorganized households where poor parenting skills, foster care, and chaotic family life were common experiences; the other group was not considered to be living in disorganized homes. All of the children were assessed for intelligence using the Peabody Picture Vocabulary Test and were then interviewed by a researcher who gave 20 prompts for personal experience narratives. The children's three longest narratives were analyzed for narrative elements that were considered to be important for school success. Some of the narrative elements evaluated include responsiveness to narrative prompts, which was evaluated by coding for clauses, number of conversational turns and prompts given by the researcher, and whether the narrative clauses described events or states. Narratives were also evaluated for being informative by counting the unique units of information within the narrative. Other narrative elements measured were the level of decontexutalization; a Likert scale was created, which rated the amount of temporal and spatial context using a scale from 0 (meaning no mention of time and space of narrative) to 4 (highly skilled in detailing the time and place of the narrative). Also, the frequency of linguistic temporality and causality relationships, as well as chronological and structural organization were examined. Results indicated all three groups of children had similar levels of intelligence and that children from group 1 (middle class children) and group 2 (economically disadvantaged but otherwise organized households) produced information dense narratives. The main difference between these two groups was that the economically disadvantaged children required more adult prompting to produce their narratives than the middle class preschoolers did. As well, the economically disadvantaged children

used fewer linguistic markers of temporal and causal relationships and their narratives were less well-patterned. Consider the following example of a disorganized narrative:

R: Tell me about when you fell down and hurt you arm.

C: The cops picked me up. That fell down.

R: The cops picked you up?

C: I was gone school.

R: You were gone to school.

C: And the bus picked me up (Peterson, 1994, p. 265).

As one can see, this economically disadvantaged child produced a narrative that jumps from story to story and he/she does not complete thoughts or ideas in a coherent manner.

The largest narrative discrepancy was found when the disorganized disadvantaged children (group 3) were compared to the disadvantaged but otherwise organized households (group 2). The children from group 3 produced minimal length narratives that were chronologically disordered. The researchers speculated that a lack of narrative organization might be associated with difficulty in the classroom environment. All children enter the school environment with a set of discourse skills that they learned from their family and/or community. What becomes apparent in the school environment is that some of these skills are well-matched to the discourse expectations of the classroom and some are not. This makes it difficult for the child to understand and meet the expectations of the teacher, which may lead to difficulty in school. Apparently, children from disadvantaged and chaotic homes had difficulty producing narratives; the narratives that they did produce required much attention and special consideration from teachers. Teachers may not always be able to provide this assistance (Patterson, 2001).

Other populations of disadvantaged children have also been investigated. Kelsay et al. (1999) examined the narrative theme and structure of same sex-twins between the ages of five and seven. The children completed the Peabody Picture Vocabulary Test as well as the MacArthur Story Stem Battery. The children's parents completed the CBCL parent report form and the children's teachers completed the CBCL teacher report form (both forms assessed children's internalizing and externalizing behaviors). Some gender differences were found, specifically the boys were more likely to tell more aggressively-themed narratives whereas the girls' narratives were more coherent and more affectionately-themed. Moreover, relationships were found between the children's narrative themes and their externalizing and internalizing behaviors. Aggressive themes were highly correlated with externalizing behavioral problems at age 5 (as rated by both parents), and at age 7 (as rated by both parents and teacher). The children who generated narratives with aggressive themes were also found to have internalizing behavioral problems at age 7 as rated by their parents. A sub-analysis was done of the children who told aggressive but incoherent stories; these children were more likely to have externalizing behavioral problems at age five (as rated by mother) and at age 7 (as rated by mother, father, and teacher). MacFie and Toth (1999) compared maltreated and nonmaltreated children matched for age, demographic variables, and receptive language ability. Both groups of children completed story stems from the MacArthur Story Stem Battery over two time periods separated by a year. The researchers found that children from maltreated homes created narratives that had more dissociated themes such as discrepancies within the child regarding a memory (i.e., the truth versus a version of the truth), his or her identity, or a perception (which was noted to be related to Dissociated

Identity Disorder). Thus the environment that the children live in may be reflected in the narratives the children create.

Summary. Narratives are another way resilience has been studied in children. The ability to generate stories helps children make sense of the situation around them; this is most poignant for children from disadvantaged environments as they are exposed to many situations that may increase their level of vulnerability. By 'making meaning' from what they experience, children demonstrate how well they are prospering given their circumstances. Research has found that children from disadvantage environments demonstrate positive narratives that reflect their positive, adaptive behaviors such as strong familial attachment. Children who are not as competent generate narratives that are poorly organized, require prompting, and are not information dense. These children also may exhibit negative externalizing behaviors and have difficult familial ties.

The Present Study

The present study was an investigation of the relationships between low SES children's level of environmental risk, level of resilience and their narrative ability. Children were asked to generate narratives based on familial themes. These narratives were viewed in relation to the children's exposure to environmental risk, receptive language development, and readiness to learn.

The following sections highlight key points from the three bodies of literature already discussed. First, the negative impact of poverty will be reviewed. Second, within the poverty framework, protective factors in the children's familial environment will be addressed. Third, the emerging research on narrative will also be introduced, which suggests that an innovative way to observe resiliency in children is through the

narratives they generate. The brief overview that follows provides the conceptual foundation for the present study.

Poverty. Poverty is prevalent amongst today's youth. Currently, 19.8% of Canadian children and 22% of American children live in impoverished environments (Statistics Canada, 1997; Children's Defense Fund, 1992). Poverty is a dire situation for children as well as adults since it is a multi-risk environment. Children in low-income environments are at risk for health problems such as malnutrition, low birth weight, and chronic illness (Garbarino, 1990). As well, living in a low-income environment has been associated with social problems such as parental unemployment, family difficulties, and even violence (Long & Vaillant, 1989).

The argument has been advanced that the risks involved in the poverty situation combine to increase the likelihood of vulnerability in children, which make it difficult for children to reach their developmental potential (Shonkoff & Marshall, 1990; Bradley et al., 1994). These vulnerable children are at risk for cognitive, emotional, and social difficulties (McLoyd, 1998; Hetherington, 1984). These difficulties frequently leave children of poverty unprepared for the school environment (Williams, 1998); this includes cognitive delays that prevent them from excelling in school, difficulties in social interactions, and/or overall low emotional maturity (Hupp, 1991). The negative impact of poverty may have negative effects on children's growth, yet despite this, some children manage to excel and reach their developmental potential. This research field is called resilience.

Resilience. Though defined in many ways, resilience in children has recently been defined as the capacity of those exposed to risk factors to overcome these risks and

avoid negative outcomes (Rak & Patterson, 1996). Longitudinal research has followed vulnerable children from birth to adulthood to assess which qualities encourage resilience (see Werner, 1971). While some resilient traits seem to reflect child temperament and inherent predisposition (Bradley et al., 1994; Thomas & Chess, 1977), others are a reflection of elements in the environment.

Protective factors in the family environment have been found to foster childhood resilience (Masten & Coatsworth, 1998). For example, home environment factors such as low household density (i.e., the number of household members), the presence of both parents in the household as well as positive caregiver-child interactions, and the presence of an alternate caregiver increase the probability of childhood resilience (Meisels & Shonkoff, 1990; Osborn, 1990; Bradley et al., 1994). Other protective environmental factors include high quality day care (McCartney et al., 1985) and effective schools (Garmezy, 1991). All of these factors have been found to encourage resilience; in other words these factors encourage children's levels of cognitive, social, and emotional development, as well as their overall level of competence. While researchers have examined children's level of resilience through personal and environmental factors, resiliency has recently been examined through the narratives that children generate.

Narrative ability and resilience. The narrative ability of children has been linked to measures of resilience, such as levels of development, school readiness, and general competence. Narratives enable children to demonstrate comprehension of their life situation. Research done on the narratives children generate about their family found that children who told narratives where parents were represented as warm and authoritative were socially more adept and had fewer behavioral problems (Oppenheim et

al., 1997). Narrative ability has also been studied in children from disadvantaged environments such as children of divorce and maltreated children (Page & Bretherton, 1994; Macfie & Toth, 1999). The narrative ability of the low-income child has also been examined and it has been found that some young children generate narratives that lack information, a sense of chronology, and overall organization (Peterson, 1994). Narratives have been found to be important to the school milieu (Feagans, 1982) since the school environment is one in which children must listen and exchange their own stories (Ward, 1997). Proper narrative skills are assumed necessary for children to succeed in the classroom environment as they have been found to contribute to aspects of development such as language (Goldberg & Phillips, 1992).

Stories told by children demonstrate their ability to make sense of their life situation (Wells, 1986). Yet narratives that children hear in their lives have also been found to help children cope and deal with their adverse circumstances (Coles, 1989). In fact, stories told by children demonstrate their ability to organize their life situation and deal with the stressors they are faced with. In essence, they can act as a mechanism for child development and can be a means of exploration into children's psychological processes, which may aid school success since the children will be performing academically at a developmentally appropriate age. In sum, children demonstrate their thought processes, levels of comprehension, and emotional maturity through their narratives. Thus, narratives may be associated with levels of resilience in low-income children, which may be related to their level of readiness to learn.

The purpose of the present study was to bring together these three bodies of research; namely research on poverty, resiliency/general competence, and narrative skill.

Specifically, the links between the level of risk, the level of resilience, and the narrative skills of preschool children from a low socio-economic background were investigated. For the present study, risk was defined as the number of environmental risks that were a part of the child's environment. Resiliency or general competence was defined as a combined measure of receptive vocabulary at the child's developmentally appropriate level and a demonstration of a successful level of readiness to learn in the day care environment.

Based on Peters (1988) who reported that children can be considered to be on a continuum from more to less resilient, it was believed that children who had a higher level of competence (based on the above definition) would display a higher level of readiness to learn. Readiness to learn refers to children who the teachers believe are performing at developmental levels appropriate for their age; specifically children who have a repertoire of social skills and numeracy skills. Furthermore, since we know that narrative ability is important in the school environment, it was believed that children with higher levels of resiliency would generate narratives that were quantitatively and qualitatively different from children who demonstrated lower levels of resiliency. As well children who had difficulty generating the appropriate narratives for their age group were considered less likely to be developmentally ready to learn.

The present study examined a group of children attending three day care centers in lower income areas. The children were assessed for their level of environmental risk exposure through a series of demographic questions (e.g., family size). The children were also assessed for their receptive language vocabulary using a measure (Peabody Picture Vocabulary Test-PPVT-R) that determined their mental age (as compared to their

chronological age). The children were then measured for their readiness to learn using a questionnaire (Early Development Instrument-EDI) completed by the teachers at the day care. From both of these measures, the children's level of general competence was determined. In other words, children who were not considered to be performing at an age appropriate level and exhibited lower scores of readiness to learn were considered less competent. Children who performed cognitively age appropriately and had a higher level of readiness to learn were considered more competent. The children were also asked to generate narratives based on family scenarios (using the MacArthur Story Stem Battery-MSSB). The narratives were studied for the units of new information (Information Dense), level of narrative order (Chronology), and overall level of organization (are they good storytellers?). The researcher then observed the relationships between the level of environmental risk, the level of general competency, and the narrative ability of the children.

It was hypothesized that:

1. Children from low SES environments who were exposed to a higher number of environmental risk factors (e.g., number of household members, single vs. dual parent household) would have lower levels of general competence as compared to low SES children who have a lower number of environmental risk factors. More specifically, it was hypothesized that:

(a) Children with a greater number of environmental risk factors in their life would show lower levels of receptive language vocabulary (as measured by the Peabody Picture Vocabulary Test) as compared to children with a lower number of environmental risk factors in their life.

(b) Children with a greater number of environmental risk factors in their life would display lower levels of readiness to learn (measured by the EDI) as compared to children who had a lower number of environmental risk factors.

The above two hypotheses were based on research that has examined the effects of the environment on child development. As mentioned earlier, children are a part of many environmental contexts that may affect children's lives both directly and indirectly (Bronfenbrenner, 1979). As well, some researchers have found that when there are multiple demographic risks in the child's environment, that these risks have an additive effect on lowering the child's level of resiliency (Werner et al., 1971; Bradley et al., 1994). This lower level of resiliency has been found to contribute to a lower cognitive performance (Osborn,1990) and a lower level of school readiness (O'Brien Caughy, DiPietro, and Strobino, 1994).

2. It was hypothesized that children from low SES environments that have higher levels of competence would generate narratives that were both quantitatively and qualitatively different from children of low SES environments who had a lower level of competence. More specifically, it was hypothesized that:

(a) Children with low levels of competence would generate narratives that were less information dense as compared to children who had higher levels of resilience.

In other words, children who have low scores on the receptive vocabulary knowledge (PPVT-R) and readiness to learn (EDI) measures would generate narratives that had fewer new units of information as compared to children with higher levels of resiliency.

(b) Children with low levels of competence would generate narratives that were more likely to be chronologically disordered as compared to high- level competent children.

This means that children with lower levels of competency (as determined by the composite score of receptive language and readiness to learn measures) were more likely to generate narratives that lacked order, were hard to follow, and thus made less sense.

(c) Children with low levels of competence would generate narratives that lacked overall organization/coherence as compared to high-level competent children.

In other words, low competence children were less likely to construct narratives that demonstrated the child's command and comprehension of the story they had generated.

The above hypotheses stem from research on children in low-income environments and narrative ability. Children from low SES backgrounds may receive inadequate care (Shonkoff & Marshall, 1990) and may be more exposed to various stressful life events (McLoyd, 1998). This may be associated with lower levels of resiliency or competence. As well, it has been found that children need to make sense and derive meaning from their experiences (Wells, 1986). One way children process and organize the information around them is through narrative. Peterson (1994) found that children from lower socioeconomic households that were disorganized generated narratives that were different from the narratives generated by children from higher socio-economic households. More specifically, Peterson (1994) found that children from low SES backgrounds that were considered to be more disorganized created narratives that had fewer examples of new information and lacked chronology. The

above hypotheses and the support found in the research forms the basis for the methodology.

METHOD

Participants

Twenty-five children who attended one of three day cares located in a lower income area(s) of the Montreal region participated. The children were between the ages of 4 and 5 years (M = 57.52 months, SD = 5.62) and attended day care on a full-time basis. Of the 25 children, 12 were female and 13 were male. The children participated in two tasks during their free play periods. These tasks, as well as the teacher-answered questionnaire, were conducted in February-June 2001.

Procedure

The day care(s) were contacted to explain the present study and were asked to participate. The researcher then came into the day care(s) to distribute permission forms (Appendix A) detailing the nature of the study and asked the parents' permission for their children to participate in two tasks as well as give permission to obtain demographic information. The day care(s) were assessed for day care quality by two researchers before the data were collected. Day care quality was assessed using the Early Childhood Environment Rating Scale-Revised (Harms, Clifford, & Cryer, 1998). The children participating met individually with the researcher in a quiet area of the day care during free play periods on one occasion. The children participated in a warm-up exercise, task 1 (receptive vocabulary knowledge), and task 2 (narrative ability). The warm-up exercise, task 1, and task 2 were pilot-tested in a group of 4-5 year old children. The order for tasks 1 and 2 were counterbalanced to control for order effects. A further

description of the procedure for each task is found below. While the children were being tested, questionnaires (Early Development Instrument, Janus & Offord, 2000) were distributed to the teachers of the day care(s) that assessed each child's readiness to learn.

Warm-up exercise. As a warm-up exercise, the researcher asked each child to draw a picture (using markers) depicting who lived with them at home. The purpose for this exercise was twofold. On the one hand, this exercise helped the child become more comfortable with the researcher and thus she/he was willing to participate in tasks 1 and 2. Secondly, by asking the child to draw a picture of his/her household, the researcher was able to ask the child to identify the different people drawn and gained important demographic information on the home environment of each child. This demographic information gave the researcher insight into some of the environmental risk factors the child was exposed to (e.g., Is the child from a one or two parent household? Does he or she have many siblings?). This information was further verified by the demographic questionnaire that accompanied the permission forms distributed to the parents.

Task 1: Receptive vocabulary knowledge. For this task, the children were assessed for their language development, and more specifically their receptive language development using the Peabody Picture Vocabulary Test-Revised (1981). This test involved a series of pictures where each child was asked to point to the picture that best represented the word the researcher read to him/her.

Task 2: Narrative ability. Children's narrative ability was measured using the MacArthur Story Stem Battery (1990). The children generated three narratives based on familial scenarios such as a family dinner. The narratives were audiotaped.

Measures

1. Early Childhood Environment Rating Scale-Revised (Harms, Clifford, & Cryer, 1998). The Early Childhood Environment Rating Scale-Revised Edition (ECERS-R) (Harms et al., 1998) is a measurement used to evaluate the quality of early childcare settings (Appendix B). In particular it is designed for use in preschool, kindergarten, and child care classrooms for children ages 21/2 years through to 5 years. The ECERS-R consists of 43 items that examine seven components of the early childcare setting. They are: space and furnishings; personal care routines; language-reasoning; activities; interaction; program structure; and parents and staff. Each component has a series of questions in which the researcher evaluates the setting on a scale of 1-7 (a score of 1 means inadequate, whereas a score of 7 means excellent). Once the totals for each score are tallied, an average for each component is found as well as an overall average is calculated. The ECERS-R is recognized as a measure with high predictive validity (Peisner-Feinberg & Burchinal, 1997) as well as being a reliable measure at the indicator and item level (Harms et al., 1998). In the present study, the ECERS-R was used in order to gain a better picture of the quality of the day care setting(s) chosen. Research has found that the day care environment may have an effect on aspects of child development (Williams, 1988); thus evaluating the day care setting(s) helped determine the quality of this environment(s) where children spent considerable time.

2. The Peabody Picture Vocabulary Test-Revised. The Peabody Picture Vocabulary Test-Revised (PPVT-R) (Dunn & Dunn, 1981) is a widely used measure (see Kelsay et al., 1999; Oppenheim et al., 1996) developed to assess the receptive vocabulary of Standard American English for children (Appendix C). There are two forms of the

PPVT-R, Forms L and M, which each consist of 175 test items as well as 5 training plates. The children are read a vocabulary word that is considered appropriate for their chronological age, which is accompanied by a series of four pictures. The children are then asked to point to the picture that best represents the vocabulary word (e.g., "Can you show me doll?"). The tasks continue until the children reached their basal scores (highest 8 consecutive correct responses) and ceiling scores (lowest 8 consecutive responses containing 6 errors). A raw score is tallied on the children's performance; this score can be converted into a standard score equivalent, percentile rank, stanine, and their age equivalent (i.e., their mental age). This measurement was standardized on a national representational sample of young children, youth, and a sample of adults (Dunn & Dunn, 1981). Dunn and Dunn (1981) established satisfactory reliability; in terms of validity the PPVT-R was found to have content, construct, and criterion-related reliability. Finally, the PPVT-R was found to correlate most highly with other vocabulary measures, moderately well with other verbal intelligence tests, and to correlate to a reasonable degree with measures of school achievement (Dunn & Dunn, 1981). The PPVT-R was used in the present study as a measure of the children's receptive vocabulary, which was be used in conjunction with the readiness to learn measure to give a better representation of the children's level of general competence.

3. Demographic Questionnaire. The parents of the children participating answered a series of questions regarding their familial environment (Appendix D). This brief questionnaire provided information as to the amount of environmental risk each child was exposed to and was used to assess the children's levels of general competence.

4. Early Development Instrument. The Early Development Instrument (EDI) (Janus & Offord, 2000) is a teacher-completed questionnaire that measures children's readiness to learn (Appendix E). This measure consists of five scales (physical health and well being, social knowledge and competence, emotional maturity, language and cognitive development, and general knowledge and communication skills) and two indicators (special skills and special problems). This scale was created in consultation with teachers, principals, educators, and parents. The EDI was used in the present study to obtain a measure that assessed the children's level of readiness to learn. As mentioned, this measure was used in conjunction with the PPVT-R in order to obtain an idea of the child's level of competence.

5. MacArthur Story Stem Battery. The MacArthur Story-Stem Battery (MSSB) (Bretherton, Oppenheim, Buchsbaum, Emde, & The MacArthur Narrative Group, 1990) is a measure used to evaluate the narrative ability of children. It consists of 12 story stems based on familial themes (for the present study, three of the narratives were used) (Appendix F). The researcher began each story (using a doll set as a prop) and asked the child to finish the story. The story may be examined for many different elements; for example, the stories may be coded for content, coherence, and directness (using Likert scales). The MSSB has been used recently by various researchers examining different aspects of narrative ability (see Oppenheim et al, 1997; Bastion et al., 1999; Kelsay et al., 1999). For the purpose of the present study, the narratives generated by the children were audiotaped and coded for their amount of information, chronology, and organization/coherence.

Interrater reliability. The primary researcher, along with her co-researcher conducted interrater reliability for both the Early Childhood Environment Rating Scale-Revised (ECERS-R) and the narratives generated for the MacArthur Story Stem Battery (MSSB). For the ECERS-R, an overall strong Cohen's Kappa was calculated across the three day care centers ($\underline{K}$ = .84), which indicated that the researchers achieved high reliability. For the MSSB, 25% of the stories (i.e., 18/75 stories) were used for checking for reliability. The 18 stories were randomly selected, but they did have an equal representation of each story stem (i.e., 3 story stems). Reliability was calculated across the 18 stories for Code 1 information density, Code 2 chronology, and Code 3 organization. Cohen's Kappa was again used. Code 1information density reached a Kappa of K = .68. For Code 2 and Code 3, $\underline{K}$ = 0.70 for each.

RESULTS

Preliminary Data Considerations

Data were collected from four different sources (please see methodology). The data were checked for proper recording as well as any missing data. In the case of missing values, the mean for the appropriate column was used to replace the value. Below is a description of each source and how the data were organized and scored.

Descriptive Statistics

Early Child Environment Rating Scale-Revised (ECERS-R). The Early Child Environment Rating Scale-Revised (see Appendix B), is a 43-item measure that examines the quality of early childhood day care centers. Each item is based on a 7-point Likert scale ranging from inadequate (score of 1), minimal (score of 3), good (score of 5), and excellent (score of 7). The 43 items are then broken down into 7 subscales: space and

furnishing; personal care routines; language-reasoning; activities; interaction, program structure; and parents and staff. The averages for each subscale are tallied as well as the overall average for the entire measure. Overall, the day care centers were rated as minimal to good quality. More specifically, the average score for each day care was M = 4.7, 4.24, and 3.4 respectively. A closer examination of the various subscales revealed that all three day care centers received a low score on the issue of space, meaning that the rooms were rather small for the amount of children attending. As well, two out of the three centers scored higher on measures of verbal interactions (i.e., the ECERS-R subscales language reasoning and interaction), yet overall the day care centers' quality score was in the minimal to good range.

Demographic Questionnaire. The Demographic Questionnaire (see Appendix D) consisted of five demographic questions based on the literature that examined aspects of the children's familial environment. Each question was based on a nominal scale (e.g., Is the family on social support), which was then summed for a total score. A higher total score indicated that there was a higher level of demographic risk present for these families.

On average, the participants had very low demographic questionnaire scores (M = 1.28, SD = 1.81), indicating that there was an overall low level of demographic risk. As well, the large standard deviation and the high level of skewness in the demographic distribution (Skewness = 1.73) also indicated that the data were not normally distributed (see Figure.1). For example, 23 (92%) of the participants came from households that were not on social assistance and where at least one parent was employed. As well, 21 (84%) of the participants did not live in an overcrowded household. Nevertheless, the

data were recoded into a 2-category variable based on the mean of the distribution. Participants who performed higher than the mean were considered to have greater risk in their home environment, whereas those whose score was less than the average had little to no risk in their environment. These high and low scores were used in further analyses.

Peabody Picture Vocabulary Test-Revised (PPVT-R). The Peabody Picture Vocabulary Test-Revised (see Appendix C) measures an individual's level of receptive language vocabulary. As mentioned in the methodology, each participant was shown a selection of pictures and asked to point to the picture that best represented the vocabulary word spoken by the researcher. A raw score was derived from the comparison between the child's correct and incorrect responses, as well as the ceiling and basal items. From the raw score, a standardized score, percentile rank, stanine, and mental age were derived (based on the scoring scheme). Of these scores the standardized score and the child's mental age were the most informative. The standardized score compared each participant's receptive language vocabulary with statistically standardized norms. The mental age can be used as a comparison against the child's chronological age (see Table 1).

In the present study, the PPVT-R data had a relatively normal distribution. In terms of the standardized score, there was a range ($R = 60$) from extremely low scores to moderately high scores. Whereas only 3/25 participants were considered to be extremely low in terms of receptive language vocabulary, in total 19/25 (76%) scored in the low average to low range. Overall, the participants' performance was low ($M = 93$, $SD = 14.99$) indicating that this was a low-average sample in terms of receptive language vocabulary in comparison to a population mean of 100.

The same can be said of the children's mental age. While the range was more modest (R = 32), the mean mental age for the children was lower than the participants' chronological age (M for mental age = 50.80, SD = 10.39; M for chronological age = 57.52, SD = 5.62). A paired samples t-test was performed and a significant difference between the participant's actual chronological age and the mental age derived from the PPVT-R was evident, $t(24) = 4.08$, $p < .01$. Specifically, on average children's mental age was significantly lower than their chronological age (see Table 1 for means).

Early Development Instrument (EDI). The Early Development Instrument (see Appendix E) is a teacher-answered questionnaire that examines demographic information and domains of development in children who will be attending kindergarten or elementary school the following school year. For the purpose of this thesis, the researcher examined the participants' performance on the five scales of development as well as an overall total score (based on the five developmental subscales). The five subscales were: physical well being; social competence; emotional maturity; language and cognitive development; and communication and general knowledge.

Descriptive analyses were conducted on the five scales plus the overall total (see Table 2). Overall, the average scores were within a moderate range, with a difference of 2.15 units between the highest average performance for physical well being and the lowest average performance for language and cognitive development. In other words, the participants had average development in terms of the various EDI scales as well as the EDI total.

MacArthur Story Stem Battery. The MacArthur Story Stem Battery (see Appendix F) consisted of four story stems (one warm-up story plus three recorded stories for data

collection purposes) where the researcher began a story stem and the child completed the story. Each child contributed three stories for the data set, producing a sum total of 75 stories.

Each story was coded for three elements: Code 1-information density; Code 2-chronology; and Code 3- organization. Information density was coded on a numerical scale where various units of information (see Appendix G) were tallied to produce a total score for information density. Codes 2 (chronology) and 3 (organization) were based on Likert scales (see Appendices H and I, respectively). After the stories had been coded, an average score was obtained for all three codes across the three stories generated by each participant.

Based on the normal probability curve, the overall distribution for Code 1 information density for each subscale as well as the overall total was below normal and negatively skewed. Mean scores were derived across the three stories that the participants told. Since information density consisted of five subscales (i.e., people, location, object, activity, and attributes), average subscales scores were calculated as well as the overall information density total (see Table 3). Participants had an average total score of $\underline{M}$ = 86.62 information units ($\underline{SD}$ = 68). As well, each of the subscales was significantly and positively correlated with one another as well as with the overall total (see Table 4).

Code 2 chronology and Code 3 organization data each consisted of scores that were summed across the three stories told by the participants. For Code 2 (chronology), the average participants' chronology score was $\underline{M}$ =1.99 ($\underline{SD}$ = 0.94), which was considered by the researcher (based upon the work of Peterson, 1994) to be a moderately

low level of chronology. In terms of Code 3 (organization), the average score was also low (M = 1.94, SD = 0.85) across all the stories.

Overall the relationships between the three codes were positive and mostly significant. Correlations revealed a positive significant relationship between Code 1 (information density) and Code 3 (organization), r (24)= 0.47, p < .05, and between Code 2 (chronology) and Code 3, r (24) = 0.84, p < .01 (all one-tailed). A positive, though nonsignificant relationship, was found between Code1 information density and Code 2 chronology, r (24) = 0.36, ns. These positive correlations provide the justification for using a total score for the analyses.

Hypotheses analyses

In the following section a reminder of each hypothesis shall be given, followed by an explanation of the type of analyses run and the results obtained.

Hypothesis 1A. It was hypothesized that children with a greater number of environmental risk factors in their life (as measured by the Demographic questionnaire) would show lower levels of receptive language vocabulary (as measured by the PPVT-R) as compared to children with a lower number of environmental risk factors in their life. For this hypothesis, Pearson correlations were conducted examining the relationship between the total demographic coding scheme score and the Peabody Picture Vocabulary-Revised (PPVT-R) standardized score as well as the mental age score. A nonsignificant relationship was found between the demographic total score and the standardized score, r (24) = - 0.19, ns, as well as between the demographic total score and the PPVT-R mental age score, r (24) = -. 06, ns. As expected, a significant relationship was found between the PPVT-R mental age and standardized score, r (24) = .90, p < .001.

Figure 1. Mean Performance on Demographic Quest.

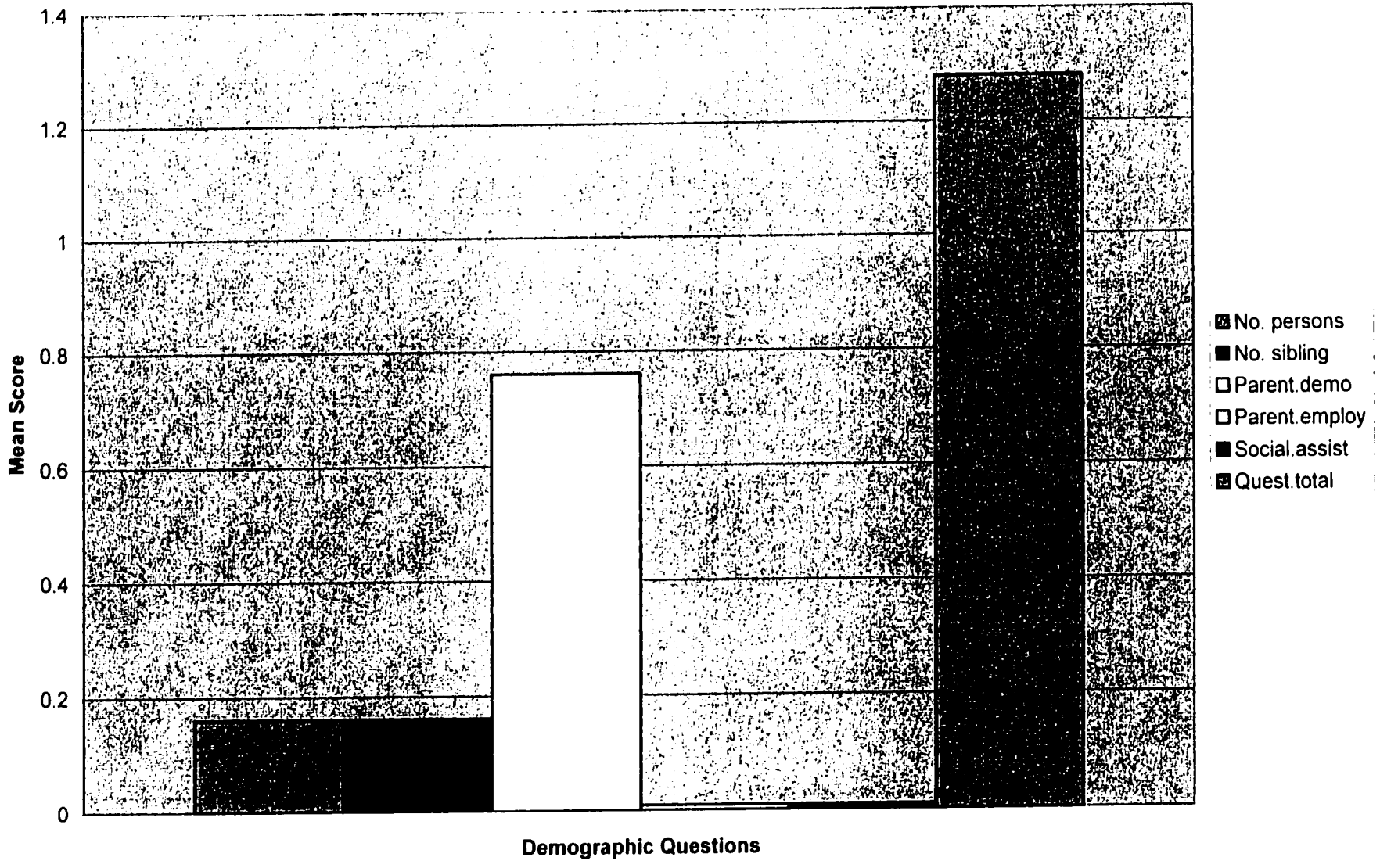

Table 1

Performance on the Peabody Picture Vocabulary Test-Revised

Type of Score	Mean	Standard Deviation
Raw Score	45.44	13.78
Standardized Score	89.32	14.99
Percentile Rank	32.00	26.23
Stanine	3.80	1.87
Chronological Age[a]	57.52	5.62
Mental Age[a]	50.80	10.39

Note. n = 25

[a] Ages are represented in months

Table 2

Performance on the Early Development Instrument

Scale	Mean	Standard Deviation
Physical Well Being	8.53	1.10
Social Competence	7.53	1.78
Emotional Maturity	7.23	2.25
Language and Cognitive Development	6.38	1.61
Communication and General Knowledge	7.60	1.78
Overall Total	37.46	6.69

Note. n = 25

Table 3

Performance on Code 1 Information Density on the Narratives Generated

Subscale	Mean	Standard Deviation
People	4.57	1.75
Location	2.98	2.44
Object	3.41	3.07
Activity	14.14	12.54
Attribute	3.77	3.62

Note. n = 25

Table 4

Intercorrelations Between the Code 1 Information Density Subscales on the Narratives Generated

Subscale	1	2	3	4	5	6
1. People	—	.67*	.63*	.74*	.62*	.81*
2. Location		—	.56*	.72*	.79*	.83*
3. Object			—	.78*	.54*	.83*
4. Activity				—	.56*	.96*
5. Attribute					—	.74*
6. Code 1 Total						—

Note. n = 25

* = p < .01

The data for the demographic questionnaire were then recoded into a 2-category system based on the mean of the data distribution (a score of 1 indicated that there was little to no environmental risk and a score of 2 indicated greater risk). A one-way analysis of variance was run with the recoded demographic questionnaire as the independent variable and the PPVT-R standardized scores (M = 92.25, SD = 17.00) and mental ages (M = 86.62, SD = 12.95) as the dependent variables, F (23)0 = .88, ns for standardized score; F (23) = .39 ns for mental age. Results again indicated no significant differences between the high versus low environmental risk participants. Thus, the findings did not support the hypothesis.

Hypothesis 1B. Children with a greater number of environmental risk factors (as measured by the demographic questionnaire) were predicted to display lower levels of readiness to learn (as measured by the EDI) as compared to children who had a lower number of environmental risk factors. Pearson correlation analyses were computed to examine the relationships between the various subscales as well as the total scale for the EDI and the total demographic score. Again, there were no significant relationships between scales of the EDI measure and the demographic questionnaire (see Table 5). A one-way analysis of variance was then calculated, examining the differences between the various subscales and the total EDI score (as dependent variables) with the recoded demographic questionnaire variable (independent variable). No significant results were obtained, thus the hypothesis was not supported (see Table 6).

Hypothesis 2A. It was predicted that children from low SES backgrounds who had higher levels of competence (as measured by the PPVT-R and the EDI) would generate narratives that were more information dense (i.e., Code 1- information density)

as compared to children who had low levels of competence. Again, Pearson correlation coefficients were derived, examining the relationships between the PPVT-R standardized score and mental age respectively to the overall mean for Code 1 (information density). Although negative relationships were found, they were not significant ($\underline{r}$ = -. 15, $\underline{ns}$ for standardized score, $\underline{r}$ = -. 06, $\underline{ns}$ for mental age, one-tailed). Secondly, Pearson correlation coefficients were calculated for the subscales and the total scale for the EDI data with the overall average information density score. Again, no significant correlations were found, with all but one (EDI subscale Emotional Maturity) negative in nature (see Table 7).

In further analyses, the data for the PPVT-R standardized score, mental age score, and the EDI total score were then recoded into dichotomous variables (where a score of 1 indicated a low score and a score of 2 indicated a high score). These dichotomies were based on the median as the cutoff (see Table 8 for the high and low means for each variable). Each of these variables (i.e., PPVT-R standardized score, PPVT-R mental age, and EDI total) were independently used in one-way analyses of variances, where the Code 1 information density score was the dependent variable. No significant differences were revealed and thus there was no support for the hypothesis (see Table 8).

Hypothesis 2B. Children with low levels of competence (as measured by the PPVT-R and the EDI) were expected to generate narratives that were more likely to be chronologically disordered as compared to high-level competent children. For this hypothesis, Spearman correlations were computed because of the ordinal nature of the Code 2 chronology data. Significant results were found. Specifically, there were significant correlations between the overall Code 2 chronology score and the PPVT-R

standardized score (r (24) = 0.48, $p < .01$) and the mental age score (r (24) = 0.55, $p < .01$); both one-tailed analyses. Furthermore, Spearman correlations were also computed on the various subscales and total scale score of the EDI in relation to the Code 2 chronology score. Significant positive relationships were found between Code 2 chronology score and the various EDI subscales, namely physical well being, social competence, emotional maturity, and communication and general knowledge (see Table 9). A significant positive correlation was also found between the Code 2 chronology score and the EDI total, which provided strong support for the hypothesis.

Furthermore, three separate one-way analyses of variances were conducted comparing the differences between the Code 2 chronology score (dependent variable) and the PPVT-R standardized score, PPVT-R mental age score, and the EDI total score (each of these independent factors were recoded into dichotomous variables of low and high scores using the mean). No significant difference was found between the EDI total score and Code 2 chronology, F (1,23) = 2.4, ns; both the PPVT-R standardized score as well as the mental age revealed significant F-statistics, which supported the hypothesis (see Table 10). Namely, children with lower PPVT-R standardized scores and mental age scores were found to tell stories that were less chronologically ordered.

Hypothesis 2C. Children with low levels of competence (as measured by the PPVT-R and the EDI) were predicted to generate narratives that lacked overall organization/coherence. Spearman correlations analyses revealed no relationship between the average Code 3 organization score and the PPVT-R standardized score (r (24) = .23, ns) and mental age (r (24) = .30, ns). However, significant Spearman correlations were found when analyzing the relationship between the EDI data and the

Code 3 organization score. Significant positive relationships were found between the Code 3 organization score and the various EDI subscales (see Table 11) as well as the EDI total. Specifically, organized narratives were positively associated with physical well being, social competence, emotional maturity, and communication and general knowledge. Again, one-way anovas were calculated, with PPVT-R standardized score, mental age score and the EDI total (recoded into 2-category variables of low and high groups based on the median) as independent factors that were compared for mean differences with the dependent variable Code 3 organization score. Significant differences were found between the organization mean and the PPVT-R standardized score and the mental age score thus support for the hypothesis was found for both the standardized score and the mental age score (see Table 12). Specifically, support was found for the hypothesis that children who had a higher level of receptive language vocabulary (as measure by the PPVT-R standardized score and mental age score) generated narratives that were overall more organized as compared to children with lower receptive language vocabulary scores.

Additional Analyses

Further analyses were conducted that explored the data to provide a richer picture. Gender was viewed as a possible variable having an impact on various measures. Pearson correlation coefficients were run on gender and the other dependent measures and significant correlations were found between gender and the Code 1 information density score, (r (24) = .40, $p < .05$; one-tailed) and gender and the Code 3 organization score, (r (24) = .51, $p < .01$). These findings indicated that girls, more than boys generated stories that were information dense as well as better organized. One-way

analyses of variances were then run to compare gender (independent variable) to the dependent factors of Code 1 information density and Code 3 organization scores. Again, there were gender differences found for Code 1, $\underline{F}$ (1, 23) = 4.33, $\underline{p} < .05$ ($\underline{M}$ female = 37.31; $\underline{M}$ male = 21.09), and for Code 3, $\underline{F}$ (1, 23) = 8.09, $\underline{p} < .01$, ($\underline{M}$ female = 2.39; $\underline{M}$ male = 1.53), which indicated that the female participants generated more information dense and organized narratives than males.

As well, analyses of the Early Development Instrument revealed that a third (32%) of the children performed poorly (as opposed to average) on the scales, and in particular performed poorly in terms of physical well being, social competence, emotional maturity, and communication and general knowledge. Given that these children did not demonstrate strong levels of competence or exemplify a readiness to learn, further analyses were done on this group to see whether they were particularly vulnerable. Pearson and Spearman correlation coefficients (two-tailed) were calculated for each of the hypotheses on this particular subgroup. A significant Spearman correlation was found between the participants' scores on the Code 2 chronology and Early Development Instrument total ($\underline{r}$ (8) = 0.76, $\underline{p} < 0.05$).

Table 5

Intercorrelations between the Demographic Questionnaire Total and the Subscales of the Early Development Instrument

Variable	1	2	3	4	5	6	7
1. Demographic Total	_	-.31	-.26	-.26	-.08	-.27	-.30
2. Physical Well Being		_	.63**	.56**	.75**	.78**	.90**
3. Social Competence			_	.84**	.42*	.54**	.86**
4. Emotional Maturity				_	.30	.44*	.76**
5. Language and Cognitive					_	.51**	.67**
6. Comm. & Gen. Knowledge						_	.83**
7. EDI Total							_

Note. n = 25

* = p < .05; ** = p < .01

Table 6

Analysis of Variance for the Early Development Instrument

Source	df	F	p
Physical Well Being	1	2.41	.13
Social Competence	1	1.43	.24
Emotional Maturity	1	1.60	.22
Lang. and Cog. Dev.t	1	.02	.90
Com. and Gen. Know	1	.83	.37
Total	1	1.90	.18
Error	23		

Table 7

Intercorrelations between the Subscales of the Early Development Instrument, Code 1 Information Density, and the PPVT-R Standardized Score and Mental Age

Variable	Code 1: Information Density	Mental Age	Standardized Score
EDI			
Physical	-.17	.52**	.57**
Social	-.02	.40*	.47**
Emotion	.00	.27	.31
Language	-.16	.40*	.42*
Communication	-.13	.65**	.69**
EDI Total	-.11	.57*	.64**
Narratives			
Code 1: Information Density	—	-.06	-.15
PPVT-R			
Mental Age		—	.89**
Standardized Score			—

Note. n = 25

* = p < .05; ** = p < .01

Table 8

Means and Standard Deviations for the Recoded PPVT-R Standardized Score, Mental Age Score and EDI Total

Variable	Mean	Standard Deviation
PPVT-R		
Stand. Score	29.28 (high)	22.17
	28.50 (low)	20.29
Mental Age		
	29.28 (high)	22.17
	28.50 (low)	20.29
EDI Total		
	30.33 (high)	23.34
	27.53 (low)	18.95

Analysis of Variance for Narrative Code 1 Information Density

Source	df	F	p
PPVT-R Stand. Score	1	.008	.93
PPVT-R Mental Age	1	.008	.93
PPVT-R EDI Total	1	.11	.74
Error	23		

Table 9

Intercorrelations between the Subscales of the Early Developmental Instrument, Code 2 Chronology, and the PPVT-R Standardized Score and Mental Age

Variable	Standardized Score	Mental Age	Code 2: Chronology
EDI			
Physical	.38*	.38*	.52**
Social	.46*	.33	.48**
Emotion	.23	.17	.44**
Language	.20	.25	.29
Communication	.61**	.60*	.59*
EDI Total	.49*	.43*	.62**
PPVT-R			
Stan. Score	—	.89**	.48**
Mental Age		—	.55**
Narratives			
Code 2: Chronology			—

* = $p < .05$; ** = $p < .01$

Table 10

Means and Standard Deviations for the Recoded PPVT-R Standardized Score, Mental Age, and EDI Total

Variable	Mean	Standard Deviation
PPVT-R		
Stand. Score	1.47 (low)	.58
	2.46 (high)	.97
Mental Age	1.47 (low)	.58
	2.46 (high)	.97
EDI Total	1.69 (low)	.98
	2.26 (high)	.84

Analysis of Variance for Code 2 Chronology Score

Source	df	F	p
PPVT-R Stand. Score	1	9.47**	.005
PPVT-R Mental Age	1	9.47**	.005
PPVT-R EDI Total	1	2.39	.14
Error	23		

** $p < .01$

Table 11

Correlations between the Subscales of the Early Developmental Instrument, Code 3 Organization Score, and the PPVT-R Standardized Score and Mental Age

Variable	Standardized Score	Mental Age	Code 3: Organization
EDI			
Physical	.38*	.38*	.43*
Social	.46*	.33	.42*
Emotion	.23	.17	.44*
Language	.20	.25	.22
Communication	.61**	.60*	.38*
EDI Total	.49*	.43*	.55**
PPVT-R			
Stan. Score	—	.89**	.23
Mental Age		—	.30
Narratives			
Code 3:Organization			—

* = $p < .05$; ** = $p < .01$

Table 12

Means and Standard Deviations for Recoded PPVT-R Standardized Score, Mental Age, and EDI Total

Variable	Mean	Standard Deviation
PPVT-R		
Stand. Score	1.58 (low)	.50
	2.28 (high)	.99
Mental Age	1.58 (low)	.50
	2.28 (high)	.99
EDI Total	1.67 (low)	.92
	2.20 (high)	.73

Analysis of Variance for Code 3 Narrative Organization

Source	df	F	p
PPVT-R Stand. Score	1	4.77*	.04
PPVT-R Mental Age	1	4.77*	.04
PPVT-R EDI Total	1	2.6	.12
Error	23		

* $p < .05$

DISCUSSION

In the following sections, the results of the current study shall be reviewed as well as a discussion of their significance. It is important to note though that, due to the small sample size, caution should be taken in generalizing these findings to the larger population. To generalize these findings would require a much larger sample size, as well as a comparison group in order to make more concrete interpretations. A more extensive examination of the limitations of the present study will follow the discussion of the results, along with future research directions.

The Level of Environmental Risk in Low-income Children's Lives

Overall, the participants of the present study were not a high-risk group. Based on the parent-answered demographic questionnaire, it was apparent that the participants did not have a great deal of environmental risk in their home environment. Effects of an overcrowded (Osborn, 1990) and stressed household (Hetherington, 1984) were not observed. For example, 23 (92%) of the participants came from households that were not on social assistance and where at least one parent was employed. Furthermore, 21 (84%) of the children lived in households that were not considered to be overcrowded (See Figure 1). Based on identification by reliable and knowledgeable individuals, the day care centers were chosen as potentially having children from high-risk environments. Given this information and the fact that the participants were not from high-risk households, it is important to question whether the primarily American-based research on risks in the home environment (which the demographic questionnaire was based on) applies to the Canadian perspective (and more specifically, the Montreal, Quebec perspective). An American perspective on the problem of home risk may not be appropriate to the

Canadian household, namely that there may be differences in the poverty situations between the two countries. Cultural differences as well as social welfare differences are two examples where the United States and Canada may differ considerably. Thus, research on poverty in the United States may not be applicable to the Canadian framework. Since there was little evidence of environmental risk in the present sample it was not surprising that no relationship was found between the amount of risk in the family environment and the children's levels of general competence (as measured by the Peabody Picture Vocabulary Test-Revised, and the Early Development Instrument).

Despite this lack of relationship between the level of environment risk and level of general competence (which was hypothesized), the participants' levels of general competence were still found to be below average. The children performed in the low-average range on the Peabody Picture Vocabulary Test-Revised (PPVT-R) and the Early Development Instrument (EDI). It is possible that there were other variables that contributed to the participant's low level of general competence besides environmental risk.

Given that the familial environment was looked at from a very limited perspective, there were other aspects of the environment that could have been examined. Aspects of the familial environment, such as family functioning, were not observed and a variable such as this may have impacted on the children's levels of competence (this idea shall be revisited in depth in an upcoming section). Another issue that may have affected the participants' levels of competence was the quality of the day care centers the children attended. As was previously noted, the centers all scored in the minimum/good range in terms of day care center quality (based on the Early Childhood Environment Rating

Scale, ECERS-R). Closer examination of the various subscales of the ECERS-R revealed that all three centers received a low score on the issue of space (i.e., the rooms were rather small), while two out of the three centers scored higher on measures of verbal interactions (i.e., subscales language reasoning, and interaction). Despite these slightly elevated scores, the overall day care quality score was in the minimal to good range. It is plausible that the day care environment may have had an impact on the general competence of the children. More specifically, the centers themselves may not have promoted developmental competence. Research that had been done on this issue supports the belief that higher quality day care contributes to levels of development such as intellectual and social development (Burchinal, Lee, & Ramey, 1989; Hagekull & Bohlin, 1995). If a higher quality day care center can promote intellectual and social development in children, it is possible that a lower quality day care may not, or may discourage development. Williams (1998) argued that day care centers might act as a form of intervention for children from low-income environments. In other words, the quality of the day care may encourage development or moderate any stresses or risks that are existing in other environments (such as the home and neighborhood environment). There is no direct evidence that points to lower quality day care as being particularly harmful, but nonetheless lower quality care does not appear to facilitate optimal children's development. It is a satisfactory situation but it does not contribute to the enhancement of the children's development. If the quality of the center is not high, as was found in the centers studied, then the children may not have received the stimulation needed in order to encourage optimal levels of development and overall general competence.

Children's General Competence

The general level of competence for the participants of the present study was considered to be below average. In terms of the Peabody Picture Vocabulary Test-Revised, it was found that the children had a below average receptive language vocabulary (based on standardized scores) as well as having a lower mental age as compared to their chronological age. Whereas only 3/25 students were considered to be extremely low in terms of receptive language vocabulary, in total 19/25 (76%) scored in the low average to low range. The performance on the Early Development Instrument (EDI), was slightly higher (i.e., more of an average performance) across all 5 subscales. However a third (32%) of the children performed poorly on the scales and, in particular, in terms of physical well being, social competence, emotional maturity, and communication and general knowledge. In other words, these children did not demonstrate strong levels of competence or exemplify a readiness to learn. As mentioned in the results section further analyses run on this subgroup of children revealed a significant positive relationship between the level of Code 2 chronology and the EDI total. Other significant results were not found, most probably due to the small sample size. Perhaps a larger sample would have given a better range of performance in the sample, as well as a further opportunity to explore this subgroup of low-competent children in more detail.

Given the below average competence levels as well as the lower quality ratings on the day care centers, the children may not have been developmentally ready for the future elementary school environment. Research done on the effects of high quality day care has found that day care quality is related to later school performance. For example,

Sameroff and Fiese (1990) found that high quality day care was related to higher academic performance in the primary grades. On the other hand, Vandell, Henderson, and Wilson (1988) concluded that low quality day care contributed to greater behavioral problems at age 8 years (which may impact on the school performance). Williams (1998) argued that day care centers might provide lower income children with a head start that will benefit them in the early elementary environment (though the long-term effects of this head start are not clear). Given that two thirds of the children in the present sample attended low quality day care centers (the third day care scoring slightly higher in quality) as well as having lower general competence levels, it is possible that these children will have difficulty once they enter the school environment. Further research, such as a follow-up study (discussed in an upcoming section) would be able to explore the notion of readiness to learn in this sample more precisely.

In the school environment, communication skills are extremely important. Being able to articulate one's ideas when talking to teachers and peers is important for children, but especially for the low SES child given the possible stress in their environment. In other words, opportunities for expression allow children to make meaning of their experiences. Not only did the children display their levels of competence in terms of the measures of receptive language vocabulary and their readiness for school as assessed by the Early Development Instrument, they also displayed their levels of competence through the narratives they generated.

The Narrative Ability of Children

Information density and general competence. It was hypothesized that there would be a positive relationship between levels of competence and narrative ability.

Moreover, it was hypothesized that children with higher levels of competence would generate narratives that demonstrated greater information density, chronology, and overall organization. The results found were interesting as well as complementary to the hypotheses generated.

While a significant positive relationship was hypothesized to exist between level of competence and information density, no relationship was found. A higher level of competence did not suggest a higher level of information density in the children's narratives. In fact, the nonsignificant relationship was negative in nature, suggesting the opposite. Perhaps if a larger sample size had been used, a significant negative relationship would have been achieved. The results found are in contrast to the work of Peterson (1994) whose low SES children produced narratives that were information dense. There are some differences between Peterson's work (1994) and the present study that should be noted though: the stories constructed by the children were different in the two studies as well as the fact that Peterson's work involved 2 comparison groups. Nevertheless, the lack of relationship between information density and competence lead this researcher to an alternate explanation of the results; namely that the lack of information density may have been due to the children's overall level of competence.

The general competence of the children may have been one reason for the amount of information density generated in the narratives. As mentioned previously, the children who participated had below average scores on the competence measures (i.e., PPVT-R, EDI). Though researchers such as Umiker-Sebeok (1979) found there to be important narrative growth and complexity during the ages of 3-5 years, it could be the case that the children studied in the present study did not have well-developed narrative skills. They

may have been not ready to tell well-constructed stories and required more practice on storytelling.

A second explanation for the lack of relationship between information density and general competence relates to the issue of narrative and storytelling ability. Upon closer examination of the narrative data, it became apparent that quantity did not imply quality. In other words, a lengthy narrative did not mean a better narrative (i.e., a narrative that was ordered, organized, and followed a classic story structure). More often than not, children with higher competence scores, told stories that were clear and concise, whereas children with lower competence scores told stories that had many units of information, but were repetitive in nature and neither well-ordered nor organized. Consider the following two examples:

Example 1.

The baby jumped in and he went sliding...all around the world...she broke into the water and when fell she marked all the family down. Even the doggy. And they had to lie down, they had to go sitting down (meaning Susan and baby character). Ah, I think he (George character) has to lie down and there should be. And baby um baby fell out of bed and then brother fell out of bed, George fell out of bed. The pants fell down. All of them fell down. And he (Dad) came to lie down, he came to lie down (Dog). And mother. And mom came to fell down cuz it's all their naptime. That's all the end of the story.

Example 2.

Child as Susan character: Mom, where's Sparky (name of Dog)?

Child as Mom: I don't know. I thought he was tied up in the backyard. Let me go and see. Look what you have done now (Dog is not there). You are a very very bad girl. I'm going to make a deal with you. You go and find Sparky. (I) can meet you over there.

Child as Susan: Look Mom, Sparky (Dog is found)!

Child as Mom: Good darling. Go and play with Sparky

Child: And that's the end.

The first example is a narrative containing more units of information (such as characters and activities) than the second, but the narrative is not well organized and does not have a clear sense of chronology. The second example on the other hand is a concise story that is well organized and has a definite beginning, middle and conclusion.

The above demonstration also gives insight into the Code 1 information density coding scheme. Given that more information in a story did not necessarily mean a better story was being told, it was possible that the coding scheme was not a proper reflection of good storytelling ability. It makes intuitive sense that a good story involves many interesting and new pieces of information. But if the basic structure of a story is not present (i.e., a sense of narrative order, a climax and an ultimate conclusion) then more information added to a story does not necessarily make it a better or more complex story. In fact, it may even contribute to a more poorly constructed narrative that is not well ordered and organized.

Narrative Chronology and Organization. While no relationship was found between information density in narratives and levels of competence, there was a

relationship between narrative chronology and narrative organization in regards to general competence. More specifically, the hypotheses were confirmed that children who had higher levels of general competence generated narratives that had both higher levels of chronology as well as organization. These results confirm the research done by Peterson (1994) who found that children who were more at-risk generated narratives that lacked chronology and organization.

The importance of the present study's results is related to the literature on meaning making in stories and a demonstration of coping ability in narratives. Narratives contain important insight into the perceptions of children. Page and Bretherton (1994), and Macfie and Toth (1999) viewed narratives as a way of understanding children's perspectives on family dynamics, whereas Coles (1989) argued that narratives were used as a means of identification in children. It is important for children to be able to make sense of the situations around them (Wells, 1989); through making sense of their life situation, children are able to cope better with any of the difficulties they face. For the children in the present study, it was apparent that more (in terms of a longer narrative) did not necessarily mean better in terms of narrative quality. A child who articulated a more coherent story demonstrated a greater ability in narrative structure, chronology and organization.

Furthermore, a child who has difficulty generating narratives may need more attention and special consideration from the teachers in his/her life. This is an especially important consideration for the future school experiences the children may have. If the school lacks the resources to give more attention to a child with narrative difficulties, the child's problems may never get addressed and the problem may worsen over time.

The Issue of Gender and Narrative Ability

As well as the analyses of the hypotheses, additional analyses were conducted examining the role of gender in narrative ability. It was interesting to note that girls, more than boys, were found to produce narratives that were information dense as well as highly organized (though information density and organization were not related to one another in the present study). It seemed that the girls were more vocal as well as more adept at producing coherent narratives. Research on children's language development supports these findings. At an early age it has been found that language progression is higher for girls than it is for boys (Hyde & Linn, 1988). Developmentally, girls have been found to physically mature faster, and are spoken to more frequently by their mothers during toddlerhood (Leaper, Anderson, & Sanders, 1998). Given this research, it is possible that overall the girls had a developmental advantage over the boys and thus were producing more information dense and well-organized narratives.

As with any study, problems and difficulties arise during the course of data collection, analyses, and interpretation. Acknowledging these issues is important in order to gain insight into the present study as well as give important information that can be applied to future studies. The following two sections discuss the problems that occurred during the present study as well as directions that can be applied to future studies of this topic.

Problems Encountered and Important Considerations

The size of the sample as well as a lack of a comparison group in the present study were two problems that perhaps had the most impact on the study. In total, only 25 children participated in the study. Given such a small sample size, it was difficult to find

many significant differences since there was neither a large distribution nor a variety of responses. A larger sample size would have given the present study a richer data set from which more complex analyses could have been conducted, not to mention a more robust confirmation of the results hypothesized and found. Although the researcher was mainly interested in individual differences in the sample, in hindsight the addition of a comparison group would have given more statistical power to the results, since there would have been a comparison group that could have been matched against the high-risk children.

Another important consideration involved the measures used in the present study. The demographic questionnaire did not reveal the participants to be from a high-risk home environment, yet there may have been other factors in the home environment that were not detected. For example, the demographic coding scheme would not have revealed family dynamics such as levels of attachment and number of verbal exchanges between parent and child. It could have been the case that the family environment may have been dysfunctional in terms of family dynamics such as parent-child interactions, and parental care. The demographic questionnaire examined the home environment at a superficial level only and a more in-depth analysis of the home may have resulted in a more accurate representation of this environment.

Another problem was the fact that information density may not have been an accurate description of narrative quality. It was apparent from the results that narratives do not have to be dense with information in order to be well told. Based on the current study, it would seem that the opposite was the case; that is, the children who told

narratives that were information dense were less likely to tell narratives that were well-ordered and well-organized.

A final point is in regards to the literature that the present study was based on. Though important Canadian research has been conducted in the fields of poverty, risk, and resilience, the literature in this field is primarily American-based. There are many economic, political, social, and cultural differences that may contribute to differences between the poverty situation in the United States as compared to Canada. These differences may have impacted on the methodology of the study, which is also related to the results found. Therefore, caution should be taken in generalizing the present study findings since the focus on the American situation of poverty, risk, and competence may not always be applicable to the Canadian situation.

Future Research

Future research on this topic could improve through involving a larger sample size as well as the use of a comparison group. By having a larger sample size, more robust results may be found due not only to a larger sample but also to the comparison between an 'at-risk group' with a group of children considered to be less at risk.

A research design that is longitudinal in nature could also provide stronger results. By examining the group of children across a longer period of time, one may be able to examine how a group of children performed at one age and see how this is related to or a prediction of later school outcomes. In the present study, the subgroup of children with low competence scores on the Early Development Instrument appeared to be a group of individuals at risk for future school difficulties. Following their transition from the day care to the elementary school environment may contribute important insight into how

children with lower levels of competence at age 4 adapt to the more structured early school environment.

Other research that could be done on this topic could examine the role of environmental home risk and narratives in a more in-depth manner. A demographic questionnaire could ask different types of questions, which could provide a more insightful analysis of the home environment. As well, other measures of family functioning such as amount of time parents spent with children as well as the amount of interaction between household members could have also been studied. Narrative analyses could also be developed further; for example, narrative themes could be examined as another variable in the study. Some researchers (see Peterson, 1994) have also looked at the number of narrative prompts the researcher had to give to the children during the narrative task. By looking at the number of times a researcher has to encourage a child to narrate, this could also be indicative of the child's discomfort with generating narratives and could be related to their ability to cope and make sense of their life situation.

Conclusions

The present study contributed to the research on environmental risk, general competence, and narrative ability. It was found that children who had overall lower levels of general competence generated narratives that lacked a sense of chronology as well as overall organization. This study also shed some light on the issue of the relationship between narrative density and narrative quality; namely that a story that is full of new information is not necessarily a better story if it lacks a sense of order, organization and narrative structure. However, this study was based on a small sample

size of children who did not appear to come from high-risk households. Despite this drawback, which further research could ameliorate, the importance of narratives as a means of coping and making sense of one's life circumstances is an important field that should be examined further.

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List of appendices

Appendix A

Consent form sent to parents

Dear Parent(s),

My name is Lisa Fiorentino and I am a Master's student in Child Study at Concordia University under the direction of my advisor Dr. Nina Howe. I am currently pursuing my thesis project and am interested in children make sense of and work through their real life problems. In particular, I am interested in the stories children tell. Children have very creative imaginations and I would like to explore the type of information children tell in their stories and how this compares to their levels of child development. We know that the stories children tell are related to how they understand their world and get along with others. I am writing to ask your permission to allow your child to participate in my study.

For my project I would meet individually with your child and have them participate in two exercises with me. In the first task, the children will be asked to identify objects amongst pictures; this will give me an understanding of children's vocabulary. In the second task, the children will tell me stories that are based on everyday occurrences in the home, such as what children might think will happen when juice is accidentally spilled on the kitchen floor.

To find out how comparable the group of children are, I will also ask the teachers to fill out a questionnaire about how your child is doing in the daycare, for example, how they get along with other children, do they know their letters and numbers.

I am writing to ask for your permission to have your child participate. This project has been approved by the Concordia University Ethics Committee. All of the information regarding your child will be used only for examining group findings and I am not interested in evaluating your child's individual performance. Your child's stories will be kept completely confidential with only myself and my advisor having access to them, with the acception of any information that the researcher is obliged to disclose by law. To ensure your child's anonymity, each child will be given a number that will identify him or her. Your child is free to withdraw at any time from the project for whatever reason.

I would like to thank you for the attention given to this letter and please do not hesitate to contact me or my advisor (Dr. Nina. Howe) if there are any questions or concerns that you may have. You may reach either of us at (514) 848-2008.

Thank you,

Lisa Fiorentino

Please return this form to me (Lisa Fiorentino) or your child's teacher. Thank you.

_____ Yes I do give permission for my child to participate in the study.
_____ No I do not give permission for my child to participate in the study.

Parent' name (please print)

_____

Parent' signature

_____

Child's name (please print)

_____

Today's date

_____

Appendix B

Early Childhood Environment Rating Scale-Revised

SCORE SHEET

Early Childhood Environment Rating Scale–Revised

Thelma Harms, Richard M. Clifford, and Debby Cryer

Observer _____ Observer Code _____

Center/School _____ Center Code _____

Room _____ Room Code _____

Teacher(s) _____ Teacher Code _____

Number of staff present _____

Number of children enrolled in class: _____

Number of children present: _____

Date of observation _____ / _____ / _____
m m d d y y

Number of children with identified disabilities _____

Check type(s) of disability: [ ] physical/sensory [ ] cognitive/language
[ ] social/emotional [ ] other: _____

Birthdates of children enrolled: youngest _____ / _____ / _____
oldest _____ / _____ / _____
m m d d y y

Time observation began _____ [ ] AM [ ] PM

Time observation ended _____ [ ] AM [ ] PM

SPACE AND FURNISHINGS

1. Indoor space

1 2 3 4 5 6 7

Notes

Y N
1 1 [ ] [ ]
1 2 [ ] [ ]
1 3 [ ] [ ]
1 4 [ ] [ ]

Y N NA
3 1 [ ] [ ]
3 2 [ ] [ ]
3 3 [ ] [ ]
3 4 [ ] [ ]
3 5 [ ] [ ] [ ]

Y N
5 1 [ ] [ ]
5 2 [ ] [ ]
5 3 [ ] [ ]

Y N
7 1 [ ] [ ]
7 2 [ ] [ ]

2. Furniture for care, play, & learning

1 2 3 4 5 6 7

Y N
1 1 [ ] [ ]
1 2 [ ] [ ]

Y N NA
3 1 [ ] [ ]
3 2 [ ] [ ]
3 3 [ ] [ ] [ ]

Y N NA
5 1 [ ] [ ]
5 2 [ ] [ ]
5 3 [ ] [ ] [ ]

Y N
7 1 [ ] [ ]
7 2 [ ] [ ]

3. Furnishings for relaxation

1 2 3 4 5 6 7

Y N
1 1 [ ] [ ]
1 2 [ ] [ ]

Y N
3 1 [ ] [ ]
3 2 [ ] [ ]

Y N
5 1 [ ] [ ]
5 2 [ ] [ ]
5 3 [ ] [ ]

Y N
7 1 [ ] [ ]
7 2 [ ] [ ]

4. Room arrangement

1 2 3 4 5 6 7

Notes

Y N
1 1 [ ] [ ]
1 2 [ ] [ ]

Y N NA
3 1 [ ] [ ]
3 2 [ ] [ ]
3 3 [ ] [ ]
3 4 [ ] [ ] [ ]

Y N
5 1 [ ] [ ]
5 2 [ ] [ ]
5 3 [ ] [ ]

Y N
7 1 [ ] [ ]
7 2 [ ] [ ]
7 3 [ ] [ ]

5. Space for privacy

1 2 3 4 5 6 7

Y N
1 1 [ ] [ ]

Y N
3 1 [ ] [ ]
3 2 [ ] [ ]

Y N
5 1 [ ] [ ]
5 2 [ ] [ ]

Y N
7 1 [ ] [ ]
7 2 [ ] [ ]

6. Child-related display

1 2 3 4 5 6 7

Y N
1 1 [ ] [ ]
1 2 [ ] [ ]

Y N
3 1 [ ] [ ]
3 2 [ ] [ ]

Y N
5 1 [ ] [ ]
5 2 [ ] [ ]
5 3 [ ] [ ]

Y N
7 1 [ ] [ ]
7 2 [ ] [ ]

7. Space for gross motor 1 2 3 4 5 6 7 Notes

1 Y N	3 Y N	5 Y N	7 Y N
1 1 ☐ ☐	3 1 ☐ ☐	5 1 ☐ ☐	7 1 ☐ ☐
1 2 ☐ ☐	3 2 ☐ ☐	5 2 ☐ ☐	7 2 ☐ ☐
		5 3 ☐ ☐	7 3 ☐ ☐

8. Gross motor equipment 1 2 3 4 5 6 7

1 Y N	3 Y N	5 Y N NA	7 Y N
1 1 ☐ ☐	3 1 ☐ ☐	5 1 ☐ ☐	7 1 ☐ ☐
1 2 ☐ ☐	3 2 ☐ ☐	5 2 ☐ ☐	7 2 ☐ ☐
1 3 ☐ ☐	3 3 ☐ ☐	5 3 ☐ ☐ ☐	

A Subscale (Items 1–8) Score ___

B Number of items scored: ___

SPACE & FURNISHINGS Average Score (A + B) ___.___

PERSONAL CARE ROUTINES

9. Greeting/departing 1 2 3 4 5 6 7 Notes

1 Y N	3 Y N	5 Y N NA	7 Y N NA
1 1 ☐ ☐	3 1 ☐ ☐	5 1 ☐ ☐	7 1 ☐ ☐
1 2 ☐ ☐	3 2 ☐ ☐	5 2 ☐ ☐	7 2 ☐ ☐
1 3 ☐ ☐	3 3 ☐ ☐	5 3 ☐ ☐ ☐	7 3 ☐ ☐ ☐

10. Meals/snacks 1 2 3 4 5 6 7

1 Y N NA	3 Y N NA	5 Y N NA	7 Y N
1 1 ☐ ☐	3 1 ☐ ☐	5 1 ☐ ☐	7 1 ☐ ☐
1 2 ☐ ☐	3 2 ☐ ☐	5 2 ☐ ☐	7 2 ☐ ☐
1 3 ☐ ☐	3 3 ☐ ☐	5 3 ☐ ☐	7 3 ☐ ☐
1 4 ☐ ☐	3 4 ☐ ☐	5 4 ☐ ☐ ☐	
1 5 ☐ ☐ ☐	3 5 ☐ ☐ ☐		
	3 6 ☐ ☐ ☐		

11. Nap/rest 1 2 3 4 5 6 7 NA Notes

1 Y N	3 Y N	5 Y N	7 Y N
1 1 ☐ ☐	3 1 ☐ ☐	5 1 ☐ ☐	7 1 ☐ ☐
1 2 ☐ ☐	3 2 ☐ ☐	5 2 ☐ ☐	7 2 ☐ ☐
1 3 ☐ ☐	3 3 ☐ ☐	5 3 ☐ ☐	
	3 4 ☐ ☐		

12. Toileting/diapering 1 2 3 4 5 6 7

1 Y N	3 Y N	5 Y N	7 Y N
1 1 ☐ ☐	3 1 ☐ ☐	5 1 ☐ ☐	7 1 ☐ ☐
1 2 ☐ ☐	3 2 ☐ ☐	5 2 ☐ ☐	7 2 ☐ ☐
1 3 ☐ ☐	3 3 ☐ ☐	5 3 ☐ ☐	
1 4 ☐ ☐	3 4 ☐ ☐		
	3 5 ☐ ☐		

13. Health practices 1 2 3 4 5 6 7

1 Y N	3 Y N	5 Y N	7 Y N NA
1 1 ☐ ☐	3 1 ☐ ☐	5 1 ☐ ☐	7 1 ☐ ☐
1 2 ☐ ☐	3 2 ☐ ☐	5 2 ☐ ☐	7 2 ☐ ☐ ☐
	3 3 ☐ ☐	5 3 ☐ ☐	
	3 4 ☐ ☐		

14. Safety practices 1 2 3 4 5 6 7

1 Y N	3 Y N	5 Y N	7 Y N
1 1 ☐ ☐	3 1 ☐ ☐	5 1 ☐ ☐	7 1 ☐ ☐
1 2 ☐ ☐	3 2 ☐ ☐	5 2 ☐ ☐	7 2 ☐ ☐
1 3 ☐ ☐	3 3 ☐ ☐		

A Subscale (Items 9–14) Score ___

B Number of items scored: ___

PERSONAL CARE ROUTINES Average Score (A + B) ___.___

LANGUAGE-REASONING

5. Books & pictures 1 2 3 4 5 6 7 — Notes

Y	N	Y	N	Y	N	Y	N
1 1	☐	3 1	☐	5 1	☐	7 1	☐
1 2	☐	3 2	☐	5 2	☐	7 2	☐
				5 3	☐		
				5 4	☐		
				5 5	☐		

6. Encouraging children to communicate 1 2 3 4 5 6 7

Y	N	Y	N	Y	N	Y	N
1 1	☐	3 1	☐	5 1	☐	7 1	☐
1 2	☐	3 2	☐	5 2	☐	7 2	☐
		3 3	☐				

7. Using language to develop reasoning skills 1 2 3 4 5 6 7

Y	N	Y	N	Y	N	Y	N
1 1	☐	3 1	☐	5 1	☐	7 1	☐
1 2	☐	3 2	☐	5 2	☐	7 2	☐

8. Informal use of language 1 2 3 4 5 6 7

Y	N	Y	N	Y	N	Y	N
1 1	☐	3 1	☐	5 1	☐	7 1	☐
1 2	☐	3 2	☐	5 2	☐	7 2	☐
1 3	☐			5 3	☐		
				5 4	☐		

. Subscale (Items 15–18) Score ___ ___

. Number of items scored: ___ ___

ANGUAGE-REASONING Average Score (A + B) ___.___ ___

ACTIVITIES

19. Fine motor 1 2 3 4 5 6 7 — Notes

Y	N	Y	N	Y	N	Y	N
1 1	☐	3 1	☐	5 1	☐	7 1	☐
1 2	☐	3 2	☐	5 2	☐	7 2	☐
				5 3	☐		

20. Art 1 2 3 4 5 6 7

Y	N	Y	N	Y	N	Y	N	NA
1 1	☐	3 1	☐	5 1	☐	7 1	☐	
1 2	☐	3 2	☐	5 2	☐	7 2	☐	
						7 3	☐	☐

21. Music/movement 1 2 3 4 5 6 7

Y	N	Y	N	Y	N	Y	N
1 1	☐	3 1	☐	5 1	☐	7 1	☐
1 2	☐	3 2	☐	5 2	☐	7 2	☐
		3 3	☐			7 3	☐

22. Blocks 1 2 3 4 5 6 7

Y	N	Y	N	Y	N	Y	N
1 1	☐	3 1	☐	5 1	☐	7 1	☐
		3 2	☐	5 2	☐	7 2	☐
		3 3	☐	5 3	☐	7 3	☐
				5 4	☐		

23. Sand/water 1 2 3 4 5 6 7

Y	N	Y	N	Y	N	Y	N
1 1	☐	3 1	☐	5 1	☐	7 1	☐
1 2	☐	3 2	☐	5 2	☐	7 2	☐
				5 3	☐		

24. Dramatic play 1 2 3 4 5 6 7 — Notes

1 1 Y N	3 1 Y N	5 1 Y N	7 1 Y N
	3 2 Y N	5 2 Y N	7 2 Y N
	3 3 Y N	5 3 Y N	7 3 Y N
		5 4 Y N	7 4 Y N

25. Nature/science 1 2 3 4 5 6 7

1 1 Y N	3 1 Y N	5 1 Y N	7 1 Y N
	3 2 Y N	5 2 Y N	7 2 Y N
	3 3 Y N	5 3 Y N	
		5 4 Y N	

26. Math/number 1 2 3 4 5 6 7

1 1 Y N	3 1 Y N	5 1 Y N	7 1 Y N
1 2 Y N	3 2 Y N	5 2 Y N	7 2 Y N
		5 3 Y N	
		5 4 Y N	

27. Use of TV, video, and/or computers 1 2 3 4 5 6 7 NA

1 1 Y N	3 1 Y N	5 1 Y N NA	7 1 Y N NA
1 2 Y N	3 2 Y N	5 2 Y N NA	7 2 Y N
	3 3 Y N	5 3 Y N	
		5 4 Y N	

28. Promoting acceptance of diversity 1 2 3 4 5 6 7

1 1 Y N	3 1 Y N	5 1 Y N	7 1 Y N
1 2 Y N	3 2 Y N	5 2 Y N	7 2 Y N
1 3 Y N	3 3 Y N		

A. Subscale (Items 19--28) Score __ __

B. Number of items scored: __ . __

ACTIVITIES Average Score (A ÷ B) __ . __ __

INTERACTION

29. Supervision of gross motor activities 1 2 3 4 5 6 7 — Notes

1 1 Y N	3 1 Y N	5 1 Y N	7 1 Y N
1 2 Y N	3 2 Y N	5 2 Y N	7 2 Y N
		5 3 Y N	7 3 Y N

30. General supervision of children 1 2 3 4 5 6 7

1 1 Y N	3 1 Y N	5 1 Y N	7 1 Y N
1 2 Y N	3 2 Y N	5 2 Y N	7 2 Y N
	3 3 Y N	5 3 Y N	
		5 4 Y N	

31. Discipline 1 2 3 4 5 6 7

1 1 Y N	3 1 Y N	5 1 Y N	7 1 Y N
1 2 Y N	3 2 Y N	5 2 Y N	7 2 Y N
1 3 Y N	3 3 Y N	5 3 Y N	7 3 Y N

32. Staff-child interactions 1 2 3 4 5 6 7

1 1 Y N	3 1 Y N	5 1 Y N	7 1 Y N
1 2 Y N	3 2 Y N	5 2 Y N	7 2 Y N
1 3 Y N		5 3 Y N	

Interactions among children 1 2 3 4 5 6 7 — Notes

Y	N	Y	N	Y	N	Y	N
1.1	☐	3.1	☐	5.1	☐	7.1	☐
1.2	☐	3.2	☐	5.2	☐	7.2	☐
1.3	☐	3.3	☐				

Subscale (Items 29–33) Score ___

Number of items scored: ___

INTERACTION Average Score (A + B) ___.___

37. Provisions for children with disabilities 1 2 3 4 5 6 7 NA — Notes

Y	N	Y	N	Y	N	Y	N
1.1	☐	3.1	☐	5.1	☐	7.1	☐
1.2	☐	3.2	☐	5.2	☐	7.2	☐
1.3	☐	3.3	☐	5.3	☐	7.3	☐
1.4	☐	3.4	☐				

A. Subscale (Items 34–37) Score ___

B. Number of items scored: ___

PROGRAM STRUCTURE Average Score (A + B) ___.___

PROGRAM STRUCTURE

Schedule 1 2 3 4 5 6 7 — Notes

Y	N	Y	N	Y	N	Y	N
1.1	☐	3.1	☐	5.1	☐	7.1	☐
		3.2	☐	5.2	☐	7.2	☐
		3.3	☐	5.3	☐		
		3.4	☐	5.4	☐		

Free play 1 2 3 4 5 6 7

Y	N	Y	N	Y	N	Y	N
1.1	☐	3.1	☐	5.1	☐	7.1	☐
1.2	☐	3.2	☐	5.2	☐	7.2	☐
		3.3	☐	5.3	☐		

Group time 1 2 3 4 5 6 7

Y	N	Y	N	Y	N	Y	N
1.1	☐	3.1	☐	5.1	☐	7.1	☐
1.2	☐	3.2	☐	5.2	☐	7.2	☐
				5.3	☐	7.3	☐

PARENTS AND STAFF

38. Provisions for parents 1 2 3 4 5 6 7 — Notes

Y	N	Y	N	Y	N	Y	N
1.1	☐	3.1	☐	5.1	☐	7.1	☐
1.2	☐	3.2	☐	5.2	☐	7.2	☐
		3.3	☐	5.3	☐	7.3	☐
		3.4	☐	5.4	☐		

39. Provisions for personal needs of staff 1 2 3 4 5 6 7

Y	N	Y	N	NA	Y	N	Y	N
1.1	☐	3.1	☐		5.1	☐	7.1	☐
1.2	☐	3.2	☐		5.2	☐	7.2	☐
		3.3	☐		5.3	☐	7.3	☐
		3.4	☐		5.4	☐		
		3.5	☐	☐				

40. Provisions for professional needs of staff 1 2 3 4 5 6 7

Y	N	Y	N	Y	N	Y	N
1.1	☐	3.1	☐	5.1	☐	7.1	☐
1.2	☐	3.2	☐	5.2	☐	7.2	☐
1.3	☐	3.3	☐	5.3	☐		

41. Staff interaction and cooperation | 1 2 3 4 5 6 7 NA | Notes

Y	N	Y	N	Y	N	Y	N
11	☐	31	☐	51	☐	71	☐
12	☐	32	☐	52	☐	72	☐
13	☐	33	☐	53	☐	73	☐

42. Supervision and evaluation of staff | 1 2 3 4 5 6 7 NA

Y	N	Y	N	NA	Y	N
11	☐	31	☐	51	☐	71	☐
12	☐	32	☐	52	☐	72	☐
				53	☐	73	☐
				54	☐	☐	

43. Opportunities for professional growth | 1 2 3 4 5 6 7

Y	N	Y	N	Y	N	NA
11	☐	31	☐	51	☐	71	☐	
12	☐	32	☐	52	☐	72	☐	
		33	☐	53	☐	73	☐	☐
				54	☐			

A. Subscale (Items 38–43) Score __ __

B. Number of items scored: __ __

PARENTS & STAFF Average Score (A ÷ B) __.__ __

Total and Average Scores

	Total Score	# of Items Scored	Average Score
Space & Furnishings			
Personal Care			
Language Reasoning			
Activities			
Interaction			
Program Structure			
Parents & Staff			
TOTAL			

Comments and Plans:

Appendix C

Peabody Picture Vocabulary Test-Revised

PPVT Peabody Picture Vocabulary Test–Revised

INDIVIDUAL TEST RECORD

by LLOYD M DUNN & LEOTA M DUNN

FORM L

NAME _____ SEX M F

HOME ADDRESS _____ HOME PHONE _____

SCHOOL _____ GRADE PLACEMENT _____

TEACHER _____ EXAMINER _____

LANGUAGE OF THE HOME ☐ Standard English ☐ Other _____

Date & Age Data

	Year	Month	Day
Date of testing			
Date of birth			
Chronological age			

*If the number of days exceeds 15, add a month to the age (see Part 1 of the Manual).

Notice to Users

The PPVT–R is not intended for use in situations where truth in testing legislation stipulates that copies of test items and correct responses be distributed to subjects, parents, or the general public. Such disclosures may make the norms meaningless in future testing.

Reason for Testing (may include referral source and person authorizing testing)

AGS® Published by American Guidance Service, Inc., 4201 Woodland Road, Circle Pines, Minnesota 55014-1796, toll free 800-328-2560. For additional forms, call or write and ask for item 2002 (25 per package)

Obtained Test Scores

Raw score (from page 4)

Standard score equivalent (from Table 4 Appendix A)

Percentile rank (from Table 4 Appendix A)

Stanine (from Table 4 Appendix A)

Age equivalent (from Table 4 Appendix A)

EXTREMELY LOW SCORE	MODERATELY LOW SCORE	LOW AVERAGE SCORE	HIGH AVERAGE SCORE	MODERATELY HIGH SCORE	EXTREMELY HIGH SCORE

TRUE SCORE CONFIDENCE BAND

Mark the obtained standard score equivalent on the top scale. Then draw a heavy straight vertical line through it and across the three scales. This line will extend through the three obtained deviation type test scores. Depending upon the obtained standard score, shade in a band on both sides of the vertical line, using the schedule to the right. An example is given in Figure 1.4 of the Manual.

Obtained Standard Score	±Add to Obtained Score for 68% Band: Low	High	Obtained Standard Score	±Add to Obtained Score for 68% Band: Low	High
Below 65	0	14	100-109	7	7
65-74	2	12	110-114	6	6
75-84	4	10	115-124	10	4
85-89	6	8	125-134	12	2
90-99	7	7	135 & above	14	0

This shaded area provides a confidence band, the range of scores within which the subject's true scores can be expected to fall 68 times in 100. (These band width values are based on a median standard error of measurement (SEM) of ± 7 with the band width made increasingly asymmetrical toward the extremes to allow for regression to the mean.) See Part I of the Manual and the Technical Supplement for more precise values and a discussion of SEM confidence bands. Also see the Manual for a discussion of how to calculate the true score confidence band for the age equivalent.

Data from Other Tests

Test	Date	Results
PPVT–R FORM M		

Observations

Briefly describe the subject's test behavior, such as interest in task, quickness of response, signs of perseveration, work habits, etc.

Performance Evaluation

This standardized test provides an estimate only of this individual's hearing vocabulary in Standard English, as compared with a cross-section of U.S.A. persons of the same age. Do you believe the performance of this subject represents fairly her or his true ability in this area? _____ Yes _____ No. If not, cite reasons such as rapport problems, poor testing situation, hearing or vision loss, visual-perceptual disorder, test too easy or too hard (automatic basal or ceiling used), etc.

Recommendations

Examiner's signature _____

Appendix D

Demographic Questionnaire

Please answering the following questions to the best of your ability.

- How many individuals live with the child in his/her household (including the child)? If possible, please indicate who lives with the child (i.e., parents, stepparents, grandparents, siblings, family friends).

- What is the child's mother tongue, or first language?

- How many siblings does the child have?

- How would you describe the family (please choose one of the following)?

  ___Single parent household

  ___2 Parent household (birth parents)

  ___2 Parent household (with one birth parent; the other parent is a Step-parent or a Common-law partner)

  ___Foster parent(s)

  ___Other: please specify: _____

- How many people in the child's household are employed? If possible could you please specify who in the household is working?

  _____
  _____
  _____
  _____

Appendix E

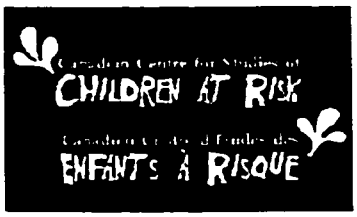
Early Development Instrument

EARLY DEVELOPMENT INSTRUMENT

A Population-Based Measure for Communities

(formerly the School Readiness-to-Learn Tool)

2000/2001



Use ballpoint pen
Fill in circles
like this ● or (✗)
NOT (✓)

If any of the information on the label is incorrect, please make changes clearly on the label

1. Date of Completion:

	d d	- m m	- y y
			20_ _
0	○○	○○	○○
1	○○	○○	○○
2	○○	○○	○○
3	○○	○○	○○
4	○○	○○	○○
5	○○	○○	○○
6	○○	○○	○○
7	○○	○○	○○
8	○○	○○	○○
9	○○	○○	○○

2. Child's First Language: ○ English ○ French ○ Other ○ Don't know

(Please refer to Guide for Code) [| |]

3. Sex: ○ F ○ M

4. Child Considered ESL: ○ Yes ○ No

5. Exceptional/Special Needs: ○ Yes ○ No
(Please refer to Guide)

6. Aboriginal: ○ Yes (North American Indian, Metis, or Inuit) ○ No

7. Child's Date of Birth: (if not on the label)

	d d	- m m	- y y
			199_
0	○○	○○	○
1	○○	○○	○
2	○○	○○	○
3	○○	○○	○
4	○○	○○	○
5	○○	○○	○
6	○○	○○	○
7	○○	○○	○
8	○○	○○	○
9	○○	○○	○

8. Class Assignment: ○ JK ○ SK

9. Class Type:

○ JK ○ SK ○ JK/SK ○ JK/SK/1 ○ SK/1

10. Child in Class < 1 Month: ○ Yes ○ No

11. French Immersion: ○ Yes ○ No

12. Other Immersion: ○ Yes ○ No

McMaster University, Hamilton Health Sciences Corporation
Hamilton, Ontario.
Tel. (905) 521-2100, ext. 74377

9214

Section A - Physical Well-being

1. About how many regular days has this child been absent since the beginning of school in the fall? Number of days: ☐☐.☐

Since the start of school in the fall, how often has this child arrived:

	never	rarely	some-times	usually	always	don't know
2. over- or underdressed for school-related activities	○	○	○	○	○	○
3. too tired to do school work	○	○	○	○	○	○
4. late	○	○	○	○	○	○
5. hungry	○	○	○	○	○	○

Would you say that this child:

	yes	no	don't know
6 is independent in washroom habits most of the time	○	○	○
7 shows an established hand preference (right vs. left or vice versa)	○	○	○
8 is well coordinated (i.e., moves without running into or tripping over things)	○	○	○

How would you rate this child's:

	excellent	good	average	poor	very poor	don't know
9 proficiency at holding a pen, crayons, or a brush	○	○	○	○	○	○
10. ability to manipulate objects	○	○	○	○	○	○
11. ability to climb stairs	○	○	○	○	○	○
12. level of energy throughout the school day	○	○	○	○	○	○
13. overall physical development	○	○	○	○	○	○

Section B - Language and Cognitive Skills

How would you rate this child's:	excellent	good	average	poor	very poor	don't know
1. ability to use language effectively in English	○	○	○	○	○	○
2. ability to listen in English	○	○	○	○	○	○
3. ability to tell a story	○	○	○	○	○	○
4 ability to take part in imaginative play	○	○	○	○	○	○
5 ability to communicate own needs in a way understandable to adults and peers	○	○	○	○	○	○
6. ability to understand on first try what is being said to him/her	○	○	○	○	○	○
7 ability to articulate clearly, without sound substitutions	○	○	○	○	○	○

Would you say that this child:	yes	no	don't know
8 knows how to handle a book (e.g., turn a page)	○	○	○
9 is generally interested in books (pictures and print)	○	○	○
10 is interested in reading (inquisitive curious about the meaning of printed material)	○	○	○
11 is able to identify some letters of the alphabet	○	○	○
12 is able to attach sounds to letters	○	○	○
13. is showing awareness of rhyming words	○	○	○
14. is able to participate in group reading activities	○	○	○
15. is able to read simple words	○	○	○
16. is able to read complex words	○	○	○
17. is able to read simple sentences	○	○	○
18. is experimenting with writing tools	○	○	○
19. is aware of writing directions in English (left to right, top to bottom)	○	○	○
20. is interested in writing voluntarily (and not only under the teacher's direction)	○	○	○
21. is able to write his/her own name in English	○	○	○
22. is able to write simple words	○	○	○

Section B - Language and Cognitive Skills

Would you say that this child:

	yes	no	don't know
23. is able to write simple sentences	○	○	○
24. is able to remember things easily	○	○	○
25. is interested in mathematics	○	○	○
26. is interested in games involving numbers	○	○	○
27. is able to sort and classify objects by a common characteristic (e.g., shape, colour, size)	○	○	○
28. is able to use one-to-one correspondence	○	○	○
29. is able to count to 20	○	○	○
30. is able to recognize numbers 1 - 10	○	○	○
31. is able to say which number is bigger of the two	○	○	○
32. is able to recognize geometric shapes (e.g., triangle, circle, square)	○	○	○
33. understands simple time concepts (e.g., today, summer, bedtime)	○	○	○
34. demonstrates special numeracy skills or talents	○	○	○
35. demonstrates special literacy skills or talents	○	○	○
36. demonstrates special skills or talents in arts	○	○	○
37. demonstrates special skills or talents in music	○	○	○
38. demonstrates special skills or talents in athletics/dance	○	○	○
39. demonstrates special skills or talents in problem solving in a creative way	○	○	○
40. demonstrates special skills or talents in other areas (please specify)	○	○	○

_____

41. can communicate adequately in his/her first language (based on your observation or parent/guardian information)	○	○	○

Section C - Social and Emotional Development

How would you rate this child's:	excellent	good	average	poor	very poor	don't know
1. overall social/emotional development	○	○	○	○	○	○
2. ability to get along with peers	○	○	○	○	○	○

Below is a list of statements that describe some of the feelings and behaviours of children. For each statement, please fill in the circle that best describes this child now or within the past six months.

Would you say that this child:	often or very true	sometimes or somewhat true	never or not true	don't know
3. plays and works cooperatively with other children at the level appropriate for his/her age	○	○	○	○
4. is able to play with various children	○	○	○	○
5. follows rules and instructions	○	○	○	○
6. respects the property of others	○	○	○	○
7. demonstrates self-control	○	○	○	○
8. shows self-confidence	○	○	○	○
9. demonstrates respect for adults	○	○	○	○
10. demonstrates respect for other children	○	○	○	○
11. accepts responsibility for actions	○	○	○	○
12. listens attentively	○	○	○	○
13. follows directions	○	○	○	○
14. completes work on time	○	○	○	○
15. works independently	○	○	○	○
16. takes care of school materials	○	○	○	○
17. works neatly and carefully	○	○	○	○
18. is curious about the world	○	○	○	○
19. is eager to play with a new toy	○	○	○	○
20. is eager to play a new game	○	○	○	○
21. is eager to play with/read a new book	○	○	○	○

Would you say that this child:	often or very true	sometimes or somewhat true	never or not true	don't know
22. is able to solve day-to-day problems by him/herself	○	○	○	○
23. is able to follow one-step instructions	○	○	○	○
24. is able to follow class routines without reminders	○	○	○	○
25. is able to adjust to changes in routines	○	○	○	○
26. answers questions showing knowledge about the world (e.g., leaves fall in the autumn, apple is a fruit, dogs bark, etc.)	○	○	○	○
27. shows tolerance to someone who made a mistake (e.g., when a child gives a wrong answer to a question posed by the teacher)	○	○	○	○
28. will try to help someone who has been hurt	○	○	○	○
29. volunteers to help clear up a mess someone else has made	○	○	○	○
30. if there is a quarrel or dispute will try to stop it	○	○	○	○
31. offers to help other children who have difficulty with a task	○	○	○	○
32. comforts a child who is crying or upset	○	○	○	○
33. spontaneously helps to pick up objects which another child has dropped (e.g., pencils, books)	○	○	○	○
34. will invite bystanders to join in a game	○	○	○	○
35. helps other children who are feeling sick	○	○	○	○

Would you say that this child:	often or very true	sometimes or somewhat true	never or not true	don't know
36. is upset when left by parent/guardian	○	○	○	○
37. gets into physical fights	○	○	○	○
38. bullies or is mean to others	○	○	○	○
39. kicks, bites, hits other children or adults	○	○	○	○
40. takes things that do not belong to him/her	○	○	○	○
41. laughs at other children's discomfort	○	○	○	○
42. can't sit still, is restless	○	○	○	○
43. is distractible, has trouble sticking to any activity	○	○	○	○
44. fidgets	○	○	○	○
45. is disobedient	○	○	○	○

Would you say that this child:	often or very true	sometimes or somewhat true	never or not true	don't know
46. has temper tantrums	○	○	○	○
47. is impulsive, acts without thinking	○	○	○	○
48. has difficulty awaiting turn in games or groups	○	○	○	○
49. cannot settle to anything for more than a few moments	○	○	○	○
50 is inattentive	○	○	○	○
51. seems to be unhappy, sad or depressed	○	○	○	○
52. appears fearful or anxious	○	○	○	○
53. appears worried	○	○	○	○
54 cries a lot	○	○	○	○
55 is nervous, high-strung or tense	○	○	○	○
56 is incapable of making decisions	○	○	○	○
57 is excessively shy	○	○	○	○
58 sucks a thumb most of the time	○	○	○	○

Section D - General

Do any of the problems listed below influence this student's ability to do school work in a regular classroom? Please base your answer on medical diagnosis or parent/guardian information. Mark all that apply:

	yes	no	don't know
1. physical disability	○	○	○
2. visual impairment	○	○	○
3. hearing impairment	○	○	○
4. speech impairment	○	○	○
5. learning disability	○	○	○
6. emotional problem	○	○	○
7. behavioural problem	○	○	○
8. home environment problems at home	○	○	○
9. other (specify below, please print)	○	○	○

	yes	no	don't know	
10. Do you feel that this child needs further assessment?	○	○	○	*(if yes, specify below, please print)*

Section E - Comments

To the best of your knowledge, please mark all that apply to this child:

	yes	no	don't know
1. attended an early intervention program (specify if known, please print) _____	○	○	○
2. has been in non-parental care on a regular basis prior to kindergarten entry	○	○	○

If **yes**, please specify: *(please refer to Guide for examples)*

2a. Centre-based, licensed, non-profit	○	2e. Other home-based, unlicensed, relative	○
2b. Centre-based, licensed, for profit	○	2f. Child's home, non-relative	○
2c. Other home-based, licensed	○	2g. Child's home, relative	○
2d. Other home-based, unlicensed, non-relative	○	2h. Other	○

	full-time	part-time	don't know
2i. To the best of your knowledge, prior to the child's entry to kindergarten, was this arrangement	○	○	○

	yes	no	don't know
3. attended other language or religion classes (specify if known, please print) _____	○	○	○
4. attended an organized pre-school nursery school (**only** if part-time, and if it was **not** the main child-care arrangement)	○	○	○
5. attended junior kindergarten	○	○	○
6. _____	○	○	○
7. _____	○	○	○

If you have any additional comments about this child and her/his readiness for school, list them below, please print.

_____

_____

_____

_____

Appendix F

MacArthur Story Stem Battery

MacArthur Story Stem Battery

The examiner begins each task by telling the child that the examiner will start each story and the child will finish it. Following this introduction, a warm-up story stem is presented using a doll-set as props. The stems will be presented in an animated, dramatic manner and all end with the invitation "Show me/tell me what happens next!" Non-directed comments such as "Does anything else happen in the story?" will be used to facilitate children's narratives. The examiner will move from one story-stem to the next after the child addresses the main issues in the stem and brings the narrative to an end.

The following five story stems will be used; the first being a warm-up stem while the rest are the story stems used for testing.

Story Stems presented are described for boys. Names and gender of child characters are female when participants are girls.

1. George's Birthday (warm-up task)
   You know what? It's George's birthday and Mom made him a birthday cake. It's time for the party! Come on, Dad, Susan, Baby Pat. It's time to celebrate George's birthday! Can you get the family ready at the table?
   Show me and tell me what happens now!

2. Spilled Juice
   The family is thirsty and they are going to have some juice. Now put the family close to eat other so they can have some juice.
   Here's the family drinking juice. George gets up and reaches across and Uh-Oh! He spilled juice all over the flow!
   Show me and tell me what happens now!

3. Looking for Sparky
   George has been thinking about playing with his favorite dog Sparky ever since he woke up this morning.
   Researcher as George: "Mom, I'm going out into the backyard to play with Sparky!"
   Researcher as Mother: "Ok!"
   So George goes out to the back yard- but Oh No! Sparky is gone!
   Show and tell me what happens now!

4. School Day
   George worked very hard at preschool today. Did you know what he made? He made a beautiful picture. Here's George coming home from preschool.
   Researcher as George: "Hi, Look at the picture I made at school today?"
   What do mom and dad say? What happens next?

Appendix G

Coding scheme for Code 1 Information Density

Coding scheme for Code 1 Information Density

Narrative information density refers to:
A. a description of people
B. a description of location
C. a description of objects
D. a description of activities
E. a description of attributes
that play a role in the events being narrated about.

I. A. Description of people
Every time a new individual is brought into the narrative, a point is given

I. B. Description of location
Every time a reference to where the story is taking place occurs, a point is given

I. C. Description of object
Every time an introduction to a new object that is not part of the narrative is brought into the story, a point is given.

I. D. Description of activities
Every time the child describes an activity that one or more of the characters of the story are engaging in, a point is given.

I. E. Description of attributes
At any time during a story, when the child introduces some sort of detail that enhances the story (such as colors, adjectives, etc.) a point is given.

Appendix H

Coding scheme for Code 2 Chronology

Coding scheme for Code 2 Chronology

A narrative is fundamentally a description of a series of events. Such series should be chronologically and logically organized. With events occurring earlier in time being described before events occurring later, and causative events preceding their consequences. Misordered chronology often makes narratives confusing to listeners. Based on this information, a 5 point Likert scale* was created for measuring chronology.

Score of 1: This is a poorly organized narrative. The order of the story is not clear, and the child appears to be 'all over the place' in terms of the telling of the tale. It is extremely difficult for the reader to follow.

Score of 3: A moderately well organized narrative. In this situation, the story is somewhat ordered and has a semblance of beginning, middle, and end yet it is still somewhat difficult for the reader to follow where the story is going.

Score of 5: Well-ordered narrative. In a situation such as this, the story is very well ordered and has a pace to it, describing events with a definite beginning, middle, and end (which more often than not offers some sort of resolution to the story). The researcher has no trouble following the order of the story.

*Scores of 2 and 4 will be used in the case of the reader being unsure whether a particular narrative is a score of 1, 3, or 5. In cases such as these 2 will be used to indicate a poor to moderate level of chronology, whereas 4 will indicate a strong moderate level of chronology.

Appendix I

Coding scheme for Code 3 Organization

Coding scheme for Code 3 Organization

A. Poor Organization

Rater has no clear picture of story. Individual does not put pieces of narrative together. Many/mostly markers of disorganization; especially stops and starts, scattered with no transitions, thought blockage, and ambiguous referents.

B. Moderately poor organization

Rater understands most of narrative. Individual puts some of story together but not all of story. Some markers of disorganization, typically stops and starts, or incomplete thoughts.

C. Moderate organization

Rater can understand story but there may still be some markers of disorganization. Individual does put together story but with some difficulty.

D. Moderately good organization

Rater can understand story clearly with rare incidence of markers of disorganization. Individuals puts together story and self-corrects.

E. Good organization

Individuals put story together in succinct and direct fashion. Use of orienting statements.