

Early Childhood Educators' Knowledge of Developmental Milestones (KDM) and
Appropriate Play Materials (KPM) in Relation to their Developmentally Appropriate
Practices (DAP) in Child Care Centres in Quebec.

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Legend

Acronym	Definition
ECE	Early Childhood Educator
ECEC	Early Childhood Education and Care
KDM	Knowledge of developmental milestones
KPM	Knowledge of appropriate play materials
K	Knowledge (KDM + KPM)
BDAP	Beliefs of developmentally appropriate practice
PDAP	Practice of developmentally appropriate practice
DAP	Developmentally appropriate practice (BDAP + PDAP)

Abstract

The quality of early childhood education and care programs greatly impacts children's development and well being. The classroom environment, program content and approach and early childhood educators' characteristics are some of the elements that influence quality and thus have effects on young children's development. Past research has indicated that early childhood education and care programs in Quebec have received on average low/minimal or mediocre ratings of quality and were also found to lack developmentally appropriate play materials (Drouin, Bigras, Fournier, Desrosiers, & Bernard, 2004; Goelman et al., 2006; Japel, Tremblay, & Cote, 2005).

The present study set out to explore elements that may influence the quality of child care classrooms in the province of Quebec. Early childhood educators' knowledge and developmentally appropriate practice (DAP) were examined to determine the relationship between these elements. Early childhood educators' knowledge of developmental milestones (KDM) and knowledge of appropriate play materials (KPM) were found to be weak but educators reported strong developmentally appropriate beliefs (BDAP) and practices (PDAP).

Results demonstrated positive correlations between early childhood educators' declarative knowledge of developmental milestones (KDM), knowledge of appropriate play materials (KPM) and their beliefs and practices of developmentally appropriate practice (BDAP and PDAP).

Educators' levels of declarative KDM were positively correlated with their level of declarative KPM. In addition, educators' BDAP was positively correlated with their level of declarative KPM, but their reported DAP was not linked to their level of KDM. Implications for the field of ECEC as well as early childhood education programs in CEGEPs and Universities in Quebec and across Canada are discussed in light of the study's findings and limitations.

Keywords: Early Childhood Education, Early Childhood Educator Knowledge, Developmentally Appropriate Practice, Play Materials, Developmental Milestones

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Dedication

I would like to dedicate this dissertation to my family and close friends without whom this manuscript would never have been completed. To my eclectic, strong, amazing and always entertaining family, Di Francesco and Boudrias; like with everything else in my life, I could not have achieved this step without all of you. Your constant and unquestionable love and support has made me who I am as a person and helped me surmount all the obstacles that came my way.

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Chapter I

Introduction

The importance of early childhood education and care in young children's lives is consistently scrutinized and disputed, some could say almost as much as the nature/nurture debate. Some believe young children benefit most from parental care, others believe that young children need to interact with other adults, peers of their own age, and need exposure to planned activities and high quality environments.

The reality, however, is that most parents must return to work after the birth of their child, and in Canada 1.4 million children under the age of six are in non-parental care and in Quebec, 205 000 children attend child care centres (Beach, Friendly, Ferns, Prabhu, & Forer, 2009; CRRU, 2009; Gouvernement du Québec, 2006a; Yeates, McKenna, Warberg, & Chandler, 2001). Hence, researchers in the field of early childhood education and care have conducted various studies in the past decades investigating the elements that influence young children's development. The topic of child care quality has received increased attention due to the countless factors and characteristics affecting the level of quality (Friendly & Prentice, 2009; Goelman et al., 2006; Organisation for Economic Co-operation and Development [OECD], 2006). In particular, components of quality such as classroom environment, program and early childhood educators' characteristics influence children's experiences in these centres and consequently influence their development.

It is known that young children learn through play and so improving the quality of child care centres requires improving the quality of children's play experiences within

them. Play materials, as well as the selection, use of and interaction with these materials by the early childhood (EC) educators, are deemed to be elements in the quality of care that children receive. Evidence of this is the inclusion of items regarding play materials in standardized rating scales designed to examine the quality of care provided (Drouin, Bigras, Fournier, Desrosiers, & Bernard, 2004; Harms, Clifford, & Cryer, 1998). Play materials available in young children's environments offer important stimulating experiences for their whole development including cognitive development, which relate to higher school achievement later in life (National Institute of Child Health and Human Development [NICHD], 2002a; 2006). The variety of play materials available in young children's environments is related to higher cognitive performance later in life (Montie, Xiang, & Schweinhart, 2006). One aspect of the child care experience that contributes to the promotion of cognition and language is the materials provided to support children's play.

The National Association for the Education of Young Children [NAEYC] (2005) emphasize that classroom practice should follow three core guidelines: provision of appropriate materials and activities; effective teaching; and teacher-child relationships. Yet, children in Canadian child care centres do not enjoy sufficient experiences promoting cognitive and language development (Goelman et al., 2006). And Quebec child care centres lack play materials and the quality of centres across the province is variable with only 27-percent rated as having good, very good or excellent quality (Drouin et al., 2004; Friendly & Prentice, 2009; Japel, Tremblay, & Cote, 2005; Waldfogel, 2007). These findings are similar to results from other studies conducted in North American child care centres (NICHD, 2006).

Researchers are at a loss to explain why centres lack appropriate play materials since most centres, particularly those in Quebec, are expected to allocate reasonable funding for play materials (Beach et al., 2009; Gouvernement du Québec, 2007b;2007c; 2009). In view of the fact that early childhood educators are the primary decision makers in their classrooms and that they play a major role in the quality of their classroom, gaining an insight into the characteristics of the educators that may impact the quality of their classrooms could help us to better understand this issue.

The Canadian Child care Resource and Research Unit stated in their report entitled *Early Childhood Education and Care in Canada 2008* that child care must be of high quality to be considered “developmental” (Beach et al., 2009). One of the prevalent components related to high quality in early childhood education and care is the specific approach to practice used by the educators; developmentally appropriate practice. Developmentally appropriate practice (DAP) is considered best practice in early childhood education and ensures that the classroom is developmental (Bredekamp & Copple, 1997; Copple & Bredekamp, 2009; Gestwicki, 2007; McMullen & Alat, 2002; NAEYC, 2009a; 2009b). Educators embody an approach which provides active learning experiences, challenging but achievable goals for the children and intentional teaching (NAEYC, 2009a; 2009b).

Active learning signifies that children are the “constructors of their own understanding of the world around them” and are given opportunities to select their own materials and activities according to their needs and interests which lead to child-guided experiences (NAEYC, 2009a, p. 17). Educators plan meaningful activities and interactions and they set goals according to each child’s developmental needs. They must know where the child is developmentally, and anticipate the next step or skills required, in order to

create challenging yet achievable goals for each child and for the children as a group (NAEYC, 2009a; 2009b). Also, intentionality is critical in DAP. Intentional teaching means carefully planning the curriculum, the range of teaching strategies, children's assessments, and adult/child/parent interactions in addition to establishing a suitable environment and selecting appropriate play materials. Appropriate play materials are materials that are suitable for the age group and thus correspond well to the children's skill levels. Educators must be intentional in all their decisions and in order to be intentional they must have knowledge of child development and learning (NAEYC, 2009a; 2009b).

The fundamental component of DAP is that any decision making by the educators should be based on strong knowledge to ensure that their practice is developmentally appropriate. The educators need to know each child as an individual and have an understanding of the social and cultural context in which they live and also have knowledge of child development and learning. Specifically, educators must have the knowledge about age-related characteristics such as developmental milestones (Copple & Bredekamp, 2009; NAEYC, 2009a; 2009b). The combination of all these core components of DAP can ensure high quality early childhood education and care.

As stated previously, child care centres in Quebec receive mediocre quality ratings and lack appropriate play materials, therefore the present study aimed to identify and examine the possible causes. One way to discover what could be interfering with the provision of appropriate play materials and the quality level of the centres is to explore what educators actually know about play materials and children's development and how this relates to developmentally appropriate practice.

This doctoral dissertation sought to explore specific characteristics of early childhood educators that were hypothesized to impact the quality of the classroom. The study

examined the relationships between Quebec educators' knowledge of developmental milestones (KDM), knowledge of appropriate play materials (KPM) and their beliefs (BDAP) and practices of developmentally appropriate practice (PDAP). It was hypothesized that educators who possess high level of knowledge of developmental milestones and who valued the DAP principles are more likely to provide appropriate play materials in their early childhood settings.

In all, 308 early childhood educators from across the province of Quebec completed an online survey. This survey gathered information about the educators' knowledge and developmentally appropriate practice. This dissertation will help expand the literature on early childhood education and care in general, but more particularly it will inform governments and educational institutions about the state of early childhood educators' knowledge and practice. The findings provide a justification to increase the funding to early childhood education and care to ensure high quality programs and centres. Provision of professional development opportunities for educators as well as the need to encourage educational institutions to modify their ECE program maps and course content are recommended as ways to move towards higher quality programs and centers.

Chapter II

Literature Review

Chapter II will include a review of the literature about child care quality, environmental, program and early childhood educators' characteristics and the state of child care quality in Canada and Quebec.

Child Care Quality

The field of early childhood education and care (ECEC) has received increased attention in the past decade; "Over the past 30 years, increasing attention has been paid to "early childhood education and care services"- by governments, by parents, by employers, by local communities and by researchers" (Dahlberg, Moss & Pence, 2007, p. 1). The importance of the early years, the stimulation that should be provided, the educational program to be offered as well as the approach that should be used have all been investigated in an effort to identify best practices for working with children during these early years.

As the number of working parents increases around the world, the number of children attending non-parental care is on the rise (Beach et al., 2009; Curriculum Research Resource Unit [CRRU], 2009). A recent OECD document reports that 75% of women aged 25 to 54 are working outside of the home because of economic need (OECD, 2007). In Quebec, the number of working mothers with children aged 0-5 years old has more than doubled between 1976 to 2008 from 29.8% to 76.1% (Gouvernement du Québec, 2010). Presently in 2010 there are 1 877 000 children between the ages of 0-4 in Canada and 428 000 in the province of Quebec (Statistics Canada, 2010a; 2010b).

Roughly two-thirds of Canadian children under the age of six receive non-parental care (approximately 1 400 000 children), and in Quebec, approximately 200 000 children under the age of five attend child care centres (Gouvernement du Québec, 2006; Yeates et

al., 2001; CRRU, 2009). As demand for early years care rises, early childhood professionals have focused on evaluating and examining elements of the ECEC and in particular, examine the quality of these settings as a way of characterizing them.

The Canadian cost-benefit analysis concluded that the benefits of a quality national child care system would exceed the cost by 2 to 1 (Cleveland & Krashinsky, 1998). The early childhood period “provides an unequalled opportunity for investment in human capital” (OECD, 2006, p. 36) and the quality of ECEC, in its various forms and measurable variables, is a key influence on children’s development (Belsky, 2006; Burchinal et al., 2000; Friendly & Prentice, 2009; NICHD, 2002; 2003; 2003b; 2004; 2006; Saracho & Spodeck, 2007).

Numerous perspectives and definitions exist about what constitutes “quality” in early childhood education and care settings. In the 1980’s, a child care centre of high quality was safe, did not use any physical punishment, and would provide the children with nutritious meals. Today, the term “quality” evokes a much larger array of elements, dimensions, components and characteristics. According to Friendly and Prentice (2009) there are many different perspectives on the quality of ECE including very broad interpretations, for example, “a high quality early childhood program is one that reflects what they [EC educators] learned at their community college program” (Friendly & Prentice, 2009, p. 55). This statement could mean that training programs project quality standards to practice, hopefully, but it may also signify that there could be an infinite number of definitions of quality and so it would be impossible to generalize specific components or elements of quality. However, for the purpose of the present study, the most common definition and components of quality will be used.

Quality of ECEC is typically established according to set guidelines about what is most appropriate for young children and what is most beneficial for their development. Identified elements, dimensions or components of quality can then be considered in relation to measures of young children's developmental achievements. Components which demonstrate consistent and significant causal effects are likely to be used as reliable components (Layzer & Goodson, 2006). Yet, it has also been suggested that in order for an evaluation of quality to be valid and meaningful, the process should involve a more dynamic approach which would include; outcome-determined quality, standards-based quality, and developmental appropriateness (Lee & Walsh, 2004).

The 2006 OECD report regarding Early Childhood Education and Care (ECEC) Policy suggests that various aspects of quality can be evaluated such as; educational concept and practice, orientation, structural, interaction/process and operational quality (OECD, 2006, p. 127). In North America and Europe, the quality of early childhood settings is established according to guidelines put forward by the American National Association for the Education of Young Children (NAEYC) (Koralek, 1995; NAEYC, 2005). The NAEYC put forward essential components of a high-quality group program for young children based on their accreditation criteria (Koralek, 1995; NAEYC, 2005).

The Canadian Early Childhood Learning Knowledge Centre outlines seven elements of high quality care: high adult-child ratio; small group sizes; post-secondary training/education; positive care provider-child relationship; well-defined spaces; well-structured, well-planned curricula; and, significant parental involvement (Early Childhood Learning Knowledge Centre, 2006, p. 3). The educational program used in early childhood settings in Quebec refers to four main dimensions of quality; quality of the interactions between educators or directors and the children and parents; the structure and arrangement

of the environment; and the structure and diversity of activities offered to children (Gouvernement du Québec, 2007b, p. 7).

Moss, Dahlberg and Pence (2000) and more recently Sheridan (2009) offer alternate approaches of viewing quality. In their article *Getting Beyond the Problem with Quality*, Moss et al. (2000) suggested that the profession revisit its definition of “quality” and how we assess, measure, and assure quality in early childhood settings. Sheridan (2009) proposed an interesting view of quality through an analytical process of deconstructing and reconstructing through an ecological framework. Sheridan suggests that quality, which cannot be categorized as either a subjective or objective concept, be seen in four interacting and interdependent dimensions (i.e., the dimensions of society, teachers, children, and learning contexts) and that each dimension be evaluated by its structure, content/process and outcome (Sheridan, 2009, p. 251). Sheridan suggests that if quality is viewed through this perspective, then pedagogical quality may take different forms across societies and cultures. The work of Moss et al., (2000) and Sheridan (2009) push us to ask, can quality really be defined in a universal manner? We are encouraged to think creatively about the definition of quality and how we attempt to define and research quality of ECEC.

In the past decade, many studies have approached the quality issue by using a *global* measure of quality that includes adult-child ratio, physical environment, interactions, activities, etc. (NICHD, 2002a;2002b; 2003, 2003b, 2004, 2006). One of the most commonly used instruments for evaluating the *process* quality of early childhood environments and programs are the Infant/Toddler Environment Rating Scale (ITERS) and the Early Childhood Environment Rating Scale-Revised Edition (ECERS-R). The ECERS-R, for two and a half to five years of age, was developed according to the criteria for quality child care settings as well as the criteria for developmentally appropriate practice

established by the NAEYC (Bredekamp & Copple, 1997; Harms et al., 1998; Koralek, 1995). It includes 43 items divided into seven subscales: space and furnishings; personal care routines; language-reasoning; activities; interaction; program structure; and, parents and staff.

The frequently used ECERS-R uses a *process* view of quality but only includes elements that can be rated and does not, for example, correlate with the educators' qualifications which is considered part of *structural* quality or beliefs and practices, that can potentially be part of both *process* and *structural* quality (Bigras et al., 2010; Bigras & Japel, 2007b; Drouin et al., 2004; Harms et al., 1998; Saracho & Spodek, 2007).

The Canadian *You Bet I care!* study investigating the quality of 326 classrooms in 239 child care centres across Canada and considered the effects of *structural* (e.g., group size and adult/child ratio) and *process* quality (e.g., ECERS-R scores) (Goelman et al., 2000; 2006). Layzer and Goodson (2006), who investigated the definitions and consistency in the measurement of quality in early care and education settings, state that *structural* characteristics (i.e., program characteristics, classroom or home characteristics, and caregiver(s) characteristics) are considered to shape all other aspects (Layzer & Goodson, 2006). Whereas some elements of *process* quality could be “providers’ warmth and sensitivity, their capacity to organize a physical and social environment that meets the needs of children in relation to their developmental level, and their positive interactions with children and parents” (Bigras et al., 2010, p. 131). According to this definition, *process* quality could possibly be affected by early childhood educators’ beliefs and practices related to developmentally appropriate practice.

Importance of Child Care Quality

Measuring the quality of early childhood settings it is the most widely used and most popular approach to evaluating how services are experienced by young children (Moss et al., 2000). In the past decade, early childhood professionals around the world have reached a consensus that the quality of ECEC programs and centres strongly affect children's development and have positive long-term gains (e.g., academic achievements and educational attainment) (Barnett, 2008; Burger, 2010; Friendly & Prentice, 2009; Goelman et al., 2006; OECD, 2007; McCain, Mustard, & Shanker, 2007). Friendly and Prentice state "child development research makes it resoundingly clear that quality matters: the importance of quality cannot be overstated" (2009, p. 51).

In 2010, Burger performed a review of international studies (i.e., Europe and North America) assessing the effects of ECEC on the young children's cognitive development. The overall findings from this review suggest that ECEC programs have significant short-term positive effects and some positive long-term effects on children's cognitive abilities. The author also states that these findings are especially important to children from low socio economic contexts since they have been reported to benefit the most (Burger, 2010).

A well known research project is the *Chicago Longitudinal Study* (Reynolds et al., 2007). This study followed 1539 low-income minority children from birth (i.e., 1979 or 1980) to the age of 24 (and is still continuing with follow ups). Of this cohort, 989 children attended a high quality Child-Parent Centre (CPC) program (i.e., centre-based early intervention and educational/family-support services) and a comparison group, 550 children, attended alternative kindergarten programs. The findings clearly indicate the importance of high quality ECEC programs. The children in the CPC program were found to go on to better academic careers; experience higher rates of school completion, higher

rates of attendance at 4-year colleges and more total years of education than the comparison group. Additionally, the CPC cohort was found to be more likely to have health coverage as well as lower rates of felony arrests, convictions, incarcerations, and depressive symptoms in the future than the comparison group (Reynolds et al., 2007). These remarkable findings support the conclusions by Cleveland & Krashinsky (1998), Cunha, Heckman, Lochner, & Masterov (2005), and Barnett (2008) that investment and engagement in high quality ECEC programs have positive social impacts and great economical return, especially for children from low SES families.

Child care quality influences all domains of children's development; cognitive, physical and socio-emotional. The Council for Early Child Development (CECD) produced the *Early Years Study 2: Putting Science into Action* by McCain, Mustard and Shanker in 2007. This report presents numerous studies which emphasize the positive impact of high quality ECEC on the lives of young children (McCain et al., 2007).

Some empirical studies assessed children's verbal abilities and vocabulary scores. It was found that children who attended more than 400 days of child care between the ages of 18 to 36 months demonstrated significantly higher verbal scores on the Wechsler Intelligence Scale for Children (WISC) at the age of 8 (Hill, Brooks-Gunn, & Walfoegel, 2003). Children who attended any early childhood activity at the age of 3, obtained higher vocabulary scores on the Peabody Picture Vocabulary Test (PPVT) at the age of five years old (Thomas, 2006).

Burchinal et al. (2000) followed 89 African American children from the age of 6 to 18 months. Through classroom observations, structural and process characteristics were measured using the ECERS-R and higher quality was associated with higher cognitive, linguistic and communication skills. Specifically, a one-point increase on the quality score

on the ECERS-R was correlated with a 10 point increase on children's cognitive (Bayley Scales of Infant Development) and language (Sequence Inventory of Communication Development) scores.

One interesting study measured the cortisol levels in young children attending low and high quality child care centres. Cortisol levels, used as an indicator of stress, were found to decrease throughout the day for children who attended high quality programs but increased in children who attended low quality programs (Sims, Guilfoyle, & Parry, 2006). This study sheds light on the subtle but important differences that can cause changes in children's development, in this case a physical reaction with socio-emotional consequences.

Most compelling in demonstrating how quality ECEC is related to children's development is a collection of studies conducted by the American National Institute of Child Health and Human Development Early Child Care Research Network (Belsky, 2006; NICHD, 2002a; 2002b; 2003a; 2003b; 2004; 2005a; 2005b; 2006; Vandell et al., 2010). Since 1991, the NICHD has followed 1,364 children from birth and conducted a multitude of longitudinal studies investigating the impact of parental and external care on young children's cognitive, physical, and socio-emotional development. Findings show that compared to children attending low quality child care centres, young children who attended high quality child care centres have higher cognitive abilities, stronger pre-academic skills, and higher school achievement (Belsky, 2006; 2007; NICHD, 2002-2006; Vandell et al., 2010). Belsky (2006) reports that attending high quality child care predicted advanced cognitive-linguistic functioning at 15, 24, 36, and 54 months of age. The effects of high quality care were also examined at the end of 6th grade where higher vocabulary scores and were reported for children who had attended quality centres (Belsky et al., 2007).

Further studies focused on additional elements related to child care quality. One study investigated the effects of child care quality on the cognitive outcome of 4 ½-year-olds and paid particular attention to the impact of the physical environment (NICHD, 2003b). The study found that the physical environment was significantly associated with children's cognitive outcome. Children attending child care centres with a large number of stimulating, varied, and well-organized play materials (e.g., materials to stimulate math, language, art and play in general) received higher scores on tests of language comprehension and short-term memory in comparison to children in centres who did not have these types of materials. This study also found that children (6 months to 36 months) in centres with a variety of good quality language and mathematical play materials (e.g., word games, blocks with letters, counting bears, puzzles) had better letter-word identification and applied problem solving at 4 ½ years of age than children from centres who did not possess as much variety in their play materials (NICHD, 2003b).

Another longitudinal study provided evidence that child care quality had long-term effects on children's language, cognitive, and social skills (Peisner-Feinberg et al., 2001). A total of 733 children were followed from 4 to 8 years of age and findings demonstrated that children who attended high quality child care centres at 4 years old demonstrated stronger social and cognitive development up to 2nd grade (Peisner-Feinberg et al., 2001).

The international and longitudinal study by the *High/Scope Educational Research Foundation* regarding child care quality revealed interesting findings about specific characteristics of quality such as the impact of play materials on young children's cognitive development (Montie et al, 2006). The foundation investigated the preschool experience of 2, 247 children from 10 countries. The research team used observations (i.e., of child activities, adult behaviour, and management of time), questionnaires (i.e., family

background, provider survey, and teacher expectation) and developmental status measures (i.e., language and cognitive level at ages four and seven years) to generate data from the 10 participating countries (Montie et al, 2006, p. 316). The study examined the structural and process characteristics of the EC settings attended by children at age four and then assessed their cognitive and language performance at age seven. One the findings consistent across seven of the countries was that the variety of materials available to children (part of the process characteristics of EC setting), regardless of the play interactions between the educator and the children, was positively correlated with children's cognitive performance at age seven (i.e., knowledge and skills in spatial relations, quantity, time, memory, and problem solving (Montie et al., 2006, p. 317). Interestingly, the teachers' education level and group size, (which were characteristics of structural elements), were not found to be associated with children's cognitive scores at age seven. The variety of materials did not influence their language performance which included elements such as telling stories, answering questions, matching pictures to words or phrases, ordering sentences, and repeating statements (Montie et al., 2006, p. 318). Many structural characteristics were found to be related to process quality, however, no specific characteristic directly predicted quality which suggests that the structural characteristics are complex and may be better assessed through actual classroom practice.

Interestingly, the authors state that the relationship between the availability of a wide range of play materials and young children's higher cognitive scores can be explained by Piaget's theory that cognitive development is encouraged by hands-on manipulation of material (Montie et al, 2006; Piaget, 1970). This is an important statement since it points to why the learning environment is so important. Realistically, educators are not always present to guide and scaffold young children's learning and nor should they be. Children

must learn autonomously and be confident to take initiatives in their environment and the easiest way to encourage autonomy and initiative, is through a well planned and organized learning environment. In an ideal ECEC setting, high adult-child ratio is maintained. But if this cannot be achieved, or if government funding continues to decrease, we must ensure that our physical environments are ideal- and that play materials are developmentally appropriate and accurately represent children's interests and needs. ECEs can only achieve this if they have strong knowledge of developmental milestones and appropriate play materials. The study demonstrated that children who had a larger variety of materials available to them during their preschool years had improved cognitive performance at age seven. In all 10 countries it was found that as the number and variety of materials in the EC classrooms increased, children's cognitive performance improved when they reach seven years old (Montie et al, 2006).

One very important point that warrants attention is that quality is usually assessed at the group or classroom level but then correlated with individual child outcome (Zaslow et al., 2006). Most recently, *NICHD Early Child Care Research Network* revealed long term positive effects of quality of early child care experiences (Vandell et al., 2010). It was found that children who had attended high quality child care from birth demonstrated higher cognitive-academic achievements and reported less externalizing behaviour (e.g., "hits others," "disobedient at school," "argues a lot") at the age of 15 (Vandell et al., 2010, p. 743). Even more interesting is that these positive effects were present across all levels of society from economically disadvantaged children, who have been the focus of many studies, and middle-class and affluent children (Vandell et al., 2010).

In addition to developmental advancements found in each domain of development, school readiness in association to child care quality has also been examined. School

readiness has been the focus of increasing attention of researchers and policy makers in Canada in the past decade with researchers examining the correlation of school readiness with the quality and the attendance of early childhood programs.

One study used the Early Childhood Longitudinal Study- Kindergarten Cohort and examined the correlation between children who attended prekindergarten and school readiness (Magnuson, Ruhm, & Waldfogel, 2007). This cohort was a nationally representative sample which included 10, 224 children. Findings revealed that prekindergarten helped children achieve increased mathematic and reading skills but also seemed to increase behaviour problems (e.g., externalizing behaviour and reduced self-control) at their entry into kindergarten. However, one limitation of this study is that there was no information about the quality of the prekindergarten programs and so there is no information about the differences in outcome according to the various dimensions of program quality (Magnuson et al., 2007).

Barnett (2008) conducted a review of the literature about the short and long-term effects of preschool education. Barnett states that “given the small initial effects of child care, it is not surprising that the estimated long-term effects are small as well” (2008, p. 6) however, still concludes that well designed programs demonstrated the most positive long-term effect on children’s school success such as higher achievement test scores, higher educational attainment and lower grade repetition. Anderson et al., (2003) note that early childhood development programs promotes children’s well-being, helps close the gap in school between levels of SES but most importantly, these programs are shown to be effective at preventing developmental delay.

Since it has been shown that children’s development is influenced by the quality of their environment it is worthwhile to investigate the various components of quality that

may impact children's lives. Based the review of literature, the *structural* and *process* quality of early childhood education and care, whether it is an early childhood program or child care centre, can be established according to three characteristics; environmental characteristics, program characteristics, and early childhood educator characteristics.

Components of Child Care Quality

Environmental characteristics. The physical environment can be considered as the “third teacher” after the parents and teachers and “is an equal partner in children's learning experience” (Maxwell, 2007, p. 230). Piaget's constructivist view lead to the belief that “teachers need to design environments and interact with children to foster inventive, creative, critical thinkers” (Daniels & Shumow, 2003, p. 497; Gandini, 1998). Piaget developed cognitive developmental theory based on the notion that children learn through interactions with their environment (Piaget, 1970). Environmental characteristics, part of the *process* quality, are elements in the child's life that can be measured with strong reliability because they are easily observable and they have been demonstrated to relate to positive developmental outcomes.

Many variables of *process* quality relate to the learning environment of an EC classroom and centre. The basic characteristics of a high quality environment include: the settings must be safe (e.g., minimal chance of physical harm) and healthy (e.g., hygienic, good ventilation, natural light, moderate temperature, controlled noise level) as well as a minimal number of square meters per child in the classroom and in the centre (Gouvernement du Quebec, 2007; 2008). Laws in most countries regulate these characteristics and governments assess these features (Government of Ontario, 2009; Gouvernement du Quebec, 2006; 2007). Unfortunately, the characteristics actually regulated

by the governments are usually minimal and when taken alone, are far from guaranteeing high quality.

The environment must also provide opportunities for independent exploration and learning which encourages the development of autonomy, intuition, and self-confidence. Therefore, materials must be accessible to the children at all times in order to foster active learning (e.g., open, child level shelves, properly labelled bins). Equipment, materials, and toys must be age appropriate, in good condition, help support all areas of development, and should be available in sufficient quantities to allow choice by the children and avoid unnecessary competition (Gouvernement du Quebec, 2007b; NICHD, 2002a; 2003a; 2003b; 2004; 2006; Yeates et al., 2001). In both their reports Friendly, Doherty and Beach (2006) and Beach and Friendly (2007) state that good quality early childhood classrooms include aspects of the *physical environment*. Their Element seven for example includes such elements as; well planned indoor and outdoor space of adequate size; good quality equipment/materials, availability of a variety of materials (Friendly et al., 2006, p. 26). The learning environment plays a role in safety and health but also in creativity, cognitive and social development. (Beach & Friendly, 2007; Friendly et al., 2006). Ratings scales which evaluate the process quality of the classroom include elements of the environment such as physical characteristics (e.g. equipment and materials available, furnishings and layout) (Bourgon & Lavallée, 2004a; 2004b; Harms et al., 1998).

In the United States of America, many aspects of the physical environment are included in state regulatory codes as indicators of high-quality including “age-appropriate educational materials, play equipment, and space requirements” (Layzer & Goodson, 2006, p. 561). In 2004, the OECD considered Canadian ELCC as having poor quality spaces and

materials and suggested Canada needed to invest in the indoor and outdoor learning environments (OECD, 2004).

High quality child care also must include well defined spaces which include spaces for specific activities (Early Childhood Learning Knowledge Centre, 2006). These defined spaces can be called interest areas (High Scope), centres, activity zones, play corners or simply groupings of materials with similar purpose or features (Hohmann et al., 2008; Gouvernement du Québec, 2007b). The Quebec Educational Program for Child Care services recommends that centers include six *activity zones*; relaxation, reading, art, music, construction, and symbolic play (Gouvernement du Québec, 2007b).

A study by Maxwell (2007) investigated 79 preschool (i.e., three and four years old) children's competency in relation to the quality of their child care and more importantly for the present study, in relations to specific characteristics of the physical environment. An innovative rating scale was created which included seven categories of items; social spaces, boundaries, privacy, personalization, complexity, scale, and adjacency (Maxwell, 2007, p. 235). The study examined children's competencies using the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children and McCarthy's Scales of Children's Abilities. Findings revealed that the quality of the physical environment was related to the cognitive competence (McCarthy Scale; verbal, perceptual-performance, quantitative, memory, and motor) of three year old children but not four year old children (Maxwell, 2007). This interesting finding suggests that younger children may be more sensitive to the physical characteristics and this could potentially have an important influence on educators' practice in classrooms with the younger age groups.

Maxwell's (2007) study is the first, according to this researcher's knowledge, that assessed the physical environment in great detail and created a rating scale that evaluated

the environment with more practical characteristics which helped identify which aspects of the environment truly played a role in children's development. The author suggests that "physical attributes of the early childhood classroom may therefore be just as critical a part of a quality child care program as teacher education and experience" (Maxwell, 2007, p. 230).

Play Materials. Children explore through hands on, manipulation of materials in their environments, therefore it is crucial that the play materials be appropriate for their development (Piaget, 1970). The field of early childhood education has been heavily influenced by Piagetian notions of learning and therefore it is not surprising that professional standards include an emphasis on appropriate materials for children to explore and master concepts.

Howes et al. (2008) states the following:

Appropriate materials within these professional standards include manipulatives, books, blocks, and dramatic play props. The standards suggest not only that these materials be in the classroom, but that children have access to the materials for a substantial portion of the day suggesting that children spend relatively little time in direct instruction without opportunities to manipulate materials. (p. 29)

Young children must participate in hands-on, active learning and have opportunities to explore their environment and the world around them. Providing appropriate play materials that they can manipulate independently is the best way to encourage this active learning. Materials available in young children's environment offer important stimulating experiences for their development (Evans, 2006; NICHD 2003b; Piaget, 1970; Wachs, 2000). Renowned early childhood education theorists such as Froebel (1975) and

Montessori (1964) as well as Caroline Pratt created their own equipment because they believed that play materials were essential in children's environment and vital to their exploration (Bronson, 1995).

According to Goelman et al. (2006), play materials could actually be considered a proximal variable of child care quality. It is understood that a key component of child care quality is the availability and type of play materials in the environment as well as the use and interactions with these materials by the EC educators (Burchinal et al., 2000; Drouin et al., 2004; Japel et al., 2005; NICHD, 2002a, 2003a, 2003b, 2004, 2006). A classroom must obtain a good rating (i.e., 5-7) on the Activity subscale of the ECERS-R to be considered as having a high quality environment (Harms et al., 1998). This means providing numerous activities relating to all areas of development and making related play materials accessible for a good part of the day (Goelman et al., 2000; 2006; Japel et al., 2005; Harms et al., 1998).

It is almost impossible to find a definition of *play materials* since what is considered a play material is strongly dependent on the early childhood educator's philosophy and approach. Some professionals maintain that any *thing* used by children during play is a play material, some give greater value to closed –ended/structured materials such as followers of Montessori, whilst others value an equal mix of closed and open-ended materials (Copple & Bredekamp, 2009; Montessori, 1964).

Nevertheless, there is a dearth of literature specializing on what are the appropriate play materials for each age group, each domain of development and the personal needs of each child. One of very few resources is the well-known book by Martha Bronson entitled *The Right Stuff* and published by the NAEYC, which offers some insight and offers a developmentally appropriate approach to the selection of play materials (Bronson, 1995).

Bronson based her work on relevant child development, play and play material literature as well as analysis of specific characteristics of the potential materials. Lists and justifications of appropriate play materials are categorized by age range (i.e., young and older infants, young and older toddlers, preschool and kindergarten, and primary school children), four types of play (i.e., social/fantasy, exploration/mastery, music/art/movement, and gross motor) and identifies selection criteria. The book details that educators should base their selection on the “usefulness in supporting the growth and development of children through play” and states that play materials should be;

- Appealing and interesting to the child
- Appropriate for the child’s physical capacities
- Appropriate for the child’s mental and social development
- Appropriate for use in groups of children
- Well constructed, durable, and for the ages of the children in the group (Bronson, 1995, p. 8)

The Government of Quebec include, in their ECEC Educational Program, brief lists of suggested materials according to the domains of development and general age group (i.e., < 18months or > 18months). Some examples include: language development - puppets; physical - stacking rings; socio-emotional - dress up material; cognitive - pop-up box (Gouvernement du Quebec, 2007b, p. 94).

Child care centres across the province received low scores on the “materials” items and some low scores on the interaction of educators with the children items (i.e., not supporting children’s initiatives) (Drouin et al., 2004). The researchers made an assumption that the lack of play materials available for the children may have forced the educators to

spend most of their time entertaining therefore result in a lack of time to encourage children's personal initiatives with the materials (Bigras et al., 2004).

It is clear that educator-child interactions and learning opportunities can be increased or stifled depending on the play materials accessible in the learning environment. The quality, appropriateness and availability of the materials in the classroom may also impact structural quality since it may depend on how the materials are used as tools for children's learning (Sheridan, 2009, p. 252).

The EC environment offers opportunities to explore and learn. A stimulating environment includes a variety of age appropriate play materials that promote educational activities and experiences (Evans, 2006; Wachs, 2000). The term "appropriate play materials" is used to signify that the materials are suitable for children's age but also their individual abilities, skills, and needs. The availability of various types of play materials provide opportunities for the children to engage in the various categories of play included (i.e., functional, constructive, symbolic, and games with rules) (Belsky, 2006; Montie et al, 2006).

Development in the pre-primary years is fostered by hands-on manipulation of materials (Piaget, 1970; Shore, 1997). Children in settings with an inadequate number or variety of materials do not have as many opportunities to experiment and solve problems at their own pace. Accordingly, play materials available in the EC environment can influence young children's cognitive development through various pathways; they can foster specific cognitive skills, encourage specific categories of cognitive play as well as support particular interactions with the educators for instance (Montie et al, 2006). Interestingly however, the specific type and number of age appropriate play materials and equipment is

usually “based on expert opinion about what fosters the development of specific skills, rather than on research evidence” (Layzer & Goodson, 2006, p. 561).

Many advantages exist in regards to incorporating the accurate quantity and developmentally appropriate materials in young children’s environment. Access to developmentally appropriate play materials provides for meaningful learning opportunities. Vygotsky described including play materials that are well suited for the children’s development and can also challenge them at the proper level and not discourage their exploration as a form of scaffolding children’s learning (Bodrova, & Leong, 2005; Bodrova, 2008; Maxwell, 2007; Vygotsky, 1986). Bodrova & Leong (2005) offer an interesting viewpoint on quality based on a Vygostkian approach which states that a quality is “education that promotes development” and a quality program is one that;

1. Amplifies the child’s learning and development within age and developmentally appropriate activities.
 2. Amplifies the child’s learning and development within age and developmentally appropriate activities.
 3. Promotes co-construction and individualized teacher-child interactions that scaffold development
 4. Uses standards as general instructional guidelines
 5. Prepares children for later grades by emphasizing underlying competencies
- (Bodrova & Leong, 2005,p. 444)

In a more recent study Bodrova suggests that children today use many extremely realistic toys which limits their pretend play and so teachers must introduce more open-ended, unstructured play materials (Bodrova, 2008). Children’s motivation and willingness

to explore their environment greatly depends on whether the early childhood educator has selected developmentally appropriate materials to suit the children's levels of development and materials that will enable the children to build on their strengths.

A study by Adams (2008) examined the correlation between different variables (i.e., child, family, teacher, and classroom) and aggression. The study included 34 children aged three to four years and used the Preschool Social Behaviours Scales, the ECERS-R, child observation logs, and family questionnaire to correlate the data. The study reported that children demonstrated more aggressive behaviour in undefined areas. The ratings from the ECERS-R were not found to predict aggression but the study expressed a need for an alternative, perhaps more sensitive, measure of classroom quality (Adams, 2008). A closer look at the data prompted the research to state "the lack of appropriate quantities, duplicate favourite items, and organization of interest areas all suggest aggression is more likely to occur as the children far outnumbered the materials" (Adams, 2008, p. 94).

The researcher therefore stated throughout her paper that many aspects of the physical environment seemed to impact the occurrence of aggressive acts. It was suggested that ECEs revise their practice and ensure that there are "adequate quantities and quality of play materials, organized play spaces, a balance of open ended and specific use or closed centres, and the floor plan of furniture and traffic patterns within the classroom" (Adams, 2008, p. viii). This study clearly indicates that the environmental characteristics can potentially impact children's behaviour patterns and so learning potential.

A recent study investigated the relationship between various aspects in child care environments and children/adults' behavioural processes (Malerba, 2005). The study used data from the NICHD Study of Early Child Care when children were 24-months-old and examined 177 child care centres and 184 home child cares. The availability of learning

materials was found to be predicted by educators' use of "recommended teaching practices" which are the recommended practices in the developmentally appropriate practice (DAP) established by the NAEYC (Malerba, 2005).

Program Characteristics. An early childhood education and care program includes the centre's and educators' philosophy of education, that is, their approach to learning (e.g., constructive VS teacher directed learning), the curriculum adopted, program goals, daily schedule, routines, and planned activities (Copple & Bredekamp, 2009; Hohmann et al., 2008; Gouvernement du Quebec, 1997; 2007b; NAEYC, 2009; Yeates et al., 2001).

In recent years the field of ECEC has come to somewhat of a consensus about the basic practices that should be covered by programs to achieve high quality education and care generally using a developmentally appropriate practice (which will be discussed in the next section), although many variations exist depending on the approach adopted.

The NAEYC, the High/Scope Research Foundation and the Government of Quebec agree that to support healthy and well-rounded child development, the program must foster the development of the whole child (i.e., social, emotional, moral, language, cognitive, and physical) through active learning in play (Copple & Bredekamp, 2009; Hohmann et al., 2008; Gouvernement du Quebec, 1997; 2007b; NAEYC, 2009).

Children must have the opportunity to experience the world in their own manner, at their own level of development, at their own pace all the while respecting their personal interests. The schedule must be flexible to allow modifications according to the children's interests and needs. The programming must also be flexible and be child directed. This allows educators to change the programming in accordance to observations of children's interests as well as the daily ambiance of the classroom (Copple & Bredekamp, 2009;

Hohmann et al., 2008; Gouvernement du Quebec, 1997; 2007b; NAEYC, 2009a). Also, cultural awareness in an anti-bias curriculum is essential to attain quality, especially in countries and provinces such as Canada and Quebec, where multiculturalism is prominent (OECD, 2004). A program must provide children with opportunities to develop various essential ongoing skills through play and not merely mimic a baby-sitting centre, and they should adapt their curriculum according to the needs and interests of each individual child (Chandler, 2009; Copple & Bredekamp, 2009; Hohmann et al., 2008; Gouvernement du Quebec, 1997; 2007b; NAEYC, 2009a; Yeates et al., 2001).

The High/Scope foundation states that any early childhood program must follow five ingredients of active participatory learning: 1. Materials; 2. Manipulation; 3. Choice; 4. Language and thoughts; and 5. Adult scaffolding (Hohmann et al., 2008, p. 24).

High/Scope programs were rated higher quality based on classroom observations and training offered to their teachers seemed to have a significant positive association with the level of quality (Epstein, 1993).

The High/Scope Preschool Curriculum Comparison study examined the outcomes of 68 children who were at age three and four assigned to three different curriculum models; Direct Instruction, High/Scope or traditional Nursery School model (Schweinhart & Weikart, 1997). Children who attended programs which emphasize active learning, were found to have higher self-esteem, stronger social skills in taking initiatives and establishing relationships, were more creative and had stronger intellectual and motor skills (Schweinhart, 2005; Schweinhart et al., 2005; Schweinhart & Weikart, 1997). Findings showed long lasting effects. By age 23, the children who had attended programs using the High/Scope or Nursery School models had significant advantages over the Direct Instruction group demonstrated through indicators such as fewer acts of misconduct, fewer

arrests and a greater number planning to graduate from college. This trend continued when the participants were 40, the effects of these high quality, active participatory programs were still apparent; they earned more and were arrested less (Schweinhart, 2005; Schweinhart et al., 2005; Schweinhart & Weikart, 1997). The Head Start FACES study found that children from classrooms which used the High Scope approach significantly improved their letter and word recognition, cooperative behaviour, and had lower behaviour problems compared to children from classrooms using other curricula (Zill et al., 2003).

As mentioned early in this chapter, in Canada most provinces regulate some basic components of *structural* quality through their legislation. Provincial acts, policies, and regulations include adult-child ratio, educator qualification and the mandatory use of an identifiable program which supports the development of the whole child and promotes a positive transition into group/communal settings (Gouvernement du Quebec, 2006; Government of Ontario [MCYS], 2009). In Quebec, the provincial Government designed and implemented an “educational program” in 1997 and a revised version in 2007 aimed at guiding early childhood education and care programs towards quality (Gouvernement du Quebec, 1997; 2007b). Originally, this educational program was based its approach on the *Jouer c’est magique* philosophy and curriculum, which is a Quebec adaptation of the successful High/Scope approach rooted in the works of Piaget (Garipey, 1998; Gouvernement du Quebec, 1997; 2007b; Hohmann & Weikart, 1995; Hohmann et al., 2008). The most recent version of Quebec’s educational program is founded on ecological and attachment theories and most notably based on the works of theorists Bronfenbrenner, Bowlby and Ainsworth. This *Child Care Educational Program* includes information on the theoretical foundation and basic principles of the program, an overview of the five

dimensions of development (i.e., emotional, physical/motor, social/moral, cognitive, language) and information on how to support quality child care. It also includes an application section which provides details of educational interventions, planning activities, the classroom environment and relating to parents (Gouvernement du Quebec, 2007b). Since the Quebec *Child Care Educational Program* is based on principles that state each child is unique, each child guides its own development, and that a child's developmental is global and integrated process, one prevailing aspect of this program is that it uses a developmentally appropriate approach.

Developmentally appropriate practice. One prominent component related to high quality ECE programs is the specific approach to practice. A classroom which receives a rating of "good" on the ECERS-R for example, indicates "developmentally appropriate child-centred programming" (Goelman et al., 2000). Over the past two decades, standards and good practice guidelines in ECEC have evolved and improved. One of the best known approaches and frameworks which describes the beliefs and practices of early childhood educators and one which they adhered to is the *Developmentally Appropriate Practice in Early Childhood Programs* first published by the NAEYC in 1987 and recently updated and refined (Bredekamp, 1986; Bredekamp, 1987; Bredekamp & Copple, 1997; Copple & Bredekamp, 2009; Gestwicki, 2007; NAEYC, 1997; 2009a).

According to the position statement created in 1997 by the National Association for the Education of Young Children (NAEYC), "developmentally appropriate practices create an optimal learning environment that guides children in their cognitive, social, emotional, and physical development. Therefore, high quality, child-centered programs are those that

use children's age, interests, and developmental level to guide curriculum and practices” (Bredekamp & Copple, 1997; Kintner, 2008, p. 8).

Developmentally appropriate practice (DAP) is a fundamental concept in early childhood education. It is a constructivist, child-centered approach which highly values play as opportunities for learning and is based on the accurate knowledge of child development theories (Bredekamp & Copple, 1997; Copple & Bredekamp, 2009; NAEYC, 2009a; Trepanier-Street, Adler & Taylor, 2007). Constructivism is a theory of knowledge which presumes that children are actively engaged in their world and build their own beliefs and knowledge through interactions with people, experiences, and materials and internal cognitive processes (Follari, 2007). A DAP ensures an equal balance between teacher-guided and child-guided experiences which guarantees that educators provide children with what they need as individuals to reach their full potential. DAP is not a curriculum model but rather a “tool to help practitioners and policy makers distinguish between appropriate and inappropriate teaching practices with young children, regardless of the curriculum approach under review” (Goffin, 2000, p. 2).

Developmentally appropriate practice (DAP) outlines “high quality” practices based on theory and research in child development and current attitudes and beliefs among early childhood professionals. It is currently held by many EC professionals to be representative of “best practices” in early childhood education and care (Bredekamp & Copple, 1997; Copple & Bredekamp, 2009; Dunn & Kontos, 1997; Gestwicki, 2007; McMullen & Alat, 2002; NAEYC, 2009a).

According to the NAEYC guidelines, developmentally appropriate practice is based on three main principles:

1. *What is known about child development and learning*— referring to knowledge of age-related characteristics that permits general predictions about what experiences are likely to best promote children's learning and development;
2. *What is known about each child as an individual*- referring to what practitioners learn about each child that has implications for how best to adapt and be responsive to that individual variation; and
3. *What is known about the social and cultural contexts in which children live*- referring to the values, expectations, and behavioural and linguistic conventions that shape children's lives at home and in their communities that practitioners must strive to understand in order to ensure that learning experiences in the program or school are meaningful, relevant, and respectful for each child and family (Copple & Bredekamp, 2009, p. 9-10).

A developmentally appropriate practice (DAP) emphasizes that children should be active learners, be involved with concrete learning materials, and interact with adults who facilitate and extend their learning experiences (Copple & Bredekamp, 2009; Trepanier-Street, et al. 2007). By following these guidelines with every child, educators are ensuring that their practice is adapted to each child thus developmentally appropriate.

Educators with higher levels of formal education have been found to demonstrate more appropriate classroom behaviour and educators who demonstrate developmentally appropriate practice have been found to have higher quality classrooms (McCarty, Abbott-Shim, & Lambert, 2001; Saracho & Spodeck, 2006;2007; Whitebook, Gomby, Bellm,

Sakai, & Kipnis, 2009). In addition, professional development or specific training has been shown to help increase DAP (Heisner, 2008).

Many research projects have demonstrated the positive effect of DAP on young children's development such as creativity, positive social/emotional outcomes, higher school achievement, positive attitudes toward school, and stronger skills in numbers and letters (Huffman & Speer, 2000; Marcon, 1992; 2000; Schweinhart et al., 2005; Stipek, Feiler, Daniels & Milburn, 1995). Furthermore, since 1997, numerous studies investigating the quality of child care centres and the impact on young children's development have unanimously reported similar results. Educators who accurately and consistently adhere to the High/Scope approach or the developmentally appropriate practice established by the NAEYC, received higher ratings of quality for their classrooms and longitudinal studies showed that children attending these centres showed higher school achievement and intellectual achievement (Belsky, 2006; Drouin et al., 2004; Japel, et al., 2005; Montie et al, 2006; NICHD, 2002a; 2003; 2003b; 2004; 2006; Schweinhart et al., 2005). The early childhood educator is the one central feature to the implementation of a DAP in an early childhood setting and consequent quality of early education and care.

Early Childhood Educator Characteristics. In recent years, educators have been confirmed to be the key factor affecting the quality of their classroom since they are both part of *structural* and influence the *process* quality of the classroom. The importance of the educator stems from the ecological perspective which puts the educator closest to the children's experience of quality (Japel & Manningham, 2007). The early childhood educators' characteristics such as education/qualification, specialization, knowledge, beliefs and practice as well as professional development have been strongly associated with

components of quality. These characteristics have been shown to influence the quality of the environment, the interactions with the children, and hence the children's development (Bigras et al., 2010; Charlesworth, Hart, & Burts, 1991; Charlesworth, Hart, Burts, Thomasson, Mosley, & Fleege, 1993; Daniels & Shumow, 2003; Doherty & Stuart, 1996; Drouin et al., 2004; Friendly & Prentice, 2009; Goelman et al., 2006; Kim, 2005; McMullen & Alat, 2002; OECD, 2004; Saracho & Spodeck, 2006; 2007).

Educators' Qualifications. Teacher education is associated with "teacher quality" which is in turn related to the quality of the early childhood program and consequently outcomes for children (Saracho & Spodeck, 2007). An interesting paradigm used by the NICHD Early Child Care Research Network (2002) outlines the "structure→ process →outcome" model of direct and indirect effects of child care quality. According to this implied directionality, educators' education and training (part of structural quality), is identified as shaping educators' attitudes, skills and knowledge which form educators competencies, which in turn impacts interactional performance (part of the process quality), which in turn impacts children's behaviours and development (part of child outcome) (Fukkink & Lont, 2007). Therefore, the present paper is based on this model and is presented in relation to level of education as well as the degree of specialization.

Several studies support the concept that better educated teachers relate to better program quality (Saracho & Spodeck, 2007). Postsecondary education in ECE is associated with adults who are more likely to be responsive, appropriate in their classroom behaviours, provide children with developmentally appropriate and stimulating activities, allow the children the freedom to explore and therefore are able to better support children's play (Barnett, 2003; Burchinal, Cryer, Clifford, & Howes, 2002; Drouin et al., 2004; Fukkink & Lont, 2007; Howes et al., 2003; Saracho & Spodeck, 2007; Whitebook, 2003b; Whitebook

et al., 2009). Specialization, that is specific training in early childhood education, contributes to positive outcomes for children in areas such as language and cognitive development, social interaction between educator and child, and the development of pro-social behaviours. It also provides educators with knowledge and skills to deliver quality ECEC, establish appropriate learning environments, and to support children's play appropriately (Daniels & Shumow, 2003; Fukkink & Lont, 2007; Goelman et al., 2006; Saracho & Spodek, 2007).

The area of qualifications in early childhood education has been in constant revision for the past 20 years. In 2000 Moss suggested that even though countries are using different approaches to training early childhood educators and teachers, there is a consensus that training should be longer and at a higher level. Our society has moved from ascribing no importance to EC educator training to an evolution in the development of programs in CEGEP (Collège d'enseignement générale et professionnel), colleges, and universities devoted to the education and care of young children. Programs today are explicit and cover topics such as health and safety in child care, first aid, educational activities, and child development theories.

Regulations regarding the minimal requirements for EC educators vary greatly depending on the country and region. In Canada for example, British Columbia, Ontario, and Quebec are the provinces that require formal training for at least 2/3 of the staff in child care centres and at least one qualified staff member in each classroom. The number of mandatory trained educators has been established according to the needs of the population but also in accordance with the availability of training. In Saskatchewan, the minimum qualification requirement is a 120-hour child care orientation course and maximum a two-year diploma and in Nunavut no training is required (Beach et al., 2009; Yeates et al.,

2001). Interestingly, recommendations made in 2000 by the Canadian *You Bet I Care!* project argued that in all provinces and territories, all lead educators should possess two-year, post-secondary ECCE diploma by 2007 and that all led educators should possess a four-year ECCE diploma by 2010 (Goelman et al., 2000).

As an example of the field striving towards better standards of practice, the province of Ontario in 2009 launched the first provincial College of Early Childhood Educators which grants accreditation to only fully qualified ECEs and allows them to use the “Registered ECE” title in an effort to set standards in the practice and increase the quality of education and care in early childhood settings across the province. The College established that the accreditation criteria is based on an education/training specialized in ECE and must include essential components of ECE such as knowledge of child development, learning environment, play and activities (Government of Ontario [MCYS], 2009).

The province of Quebec offers two main levels of post-secondary training in early childhood education: CEGEPs and University. There are 19 training programs recognized by the *Ministère de la Famille et des Aînés (MFA)* as meeting the qualifications of an early childhood educator. At the CEGEP level, students may pursue one of nine programs, the two most common being the 3-year early childhood education program (DCS) and the attestation in early childhood education program (ACS) for experienced educators (i.e., min. 3 years of experience- full time). Both programs offer two courses on child development (i.e., child development 1 & 2), which are taught by psychology professors and rarely relate to the early childhood settings and to the realities of the field. CEGEP programs are government funded and all ECE programs at the DCS level offer relatively similar courses and programme structure in an effort to ensure some equivalency in the

intended learning outcomes. EC educators in the province are thus assumed to have followed similar courses and course content and therefore have received equivalent preparation training (Drouin et al., 2004; Gouvernement du Quebec, 2010; Vanier College, 2010).

At the University level, after a pre-university two year CEGEP diploma, students may pursue one of six degrees/certificates the two most common being the four year Early Childhood and Elementary Education (ECEE) program and the three year Child Study program. Other programs such as a *Brevet* (no longer offered) or a Bachelor degree in Psychology are recognized as providing knowledge about child development but will not fully prepare a student to become an early childhood educator and these students may require specific professional development (Gouvernement du Quebec, 2007). Since traditional training to work in early childhood settings in the province of Quebec is three years (i.e., DCS in ECE), it can be considered similar to three year bachelor degrees offered in other Canadian provinces or in the U.S.A. Fortunately, elementary teachers in Quebec, distinct from other provinces, must have a four year bachelor degree specializing in early childhood and elementary education. However, we rarely find graduates of a B.Ed. in early childhood settings.

There are two specific components of the educators' qualification; education level and specialization which are identified as predictors of quality. In regards to the education level (e.g., high school, college or university), studies have reported mostly consistent findings. Programs longer than two years with a specialization in ECE are reported to have a stronger impact on quality, bachelor degrees impact educators' behaviour and the quality of their program, and some studies even found that four-year degrees were most important in enhancing the quality of ECE programs (Howes et al., 2003; Saracho & Spodek, 2007;

Whitebook, 2003a; 2003b; Whitebook et al., 2009; Zill et al., 2001). It is also suggested that a change in educators' behaviours, that is a change in skills and knowledge, may require longer periods of training whereas attitude may take less time to change, or at least to produce observable change (Fukkink & Lont, 2007).

A cross Canada study revealed that educators' level of education was a direct predictor of the quality of preschool classrooms and sensitivity towards the children (Goelman et al., 2000; 2006). Educators who possessed at least two years of post-secondary education in ECCE scored higher in the ECERS and were more sensitive towards the children as assessed by the *Caregiver Interaction Scale (CIS)* (Goelman et al., 2000). Howes et al. (2003) reported that educators who possessed a BA were most effective based on stimulation, responsiveness, and engagement of children in meaningful activities based on their development (Howes et al., 2003). Teachers with higher education were also found to have stronger developmentally appropriate beliefs and practice and consequently high quality classrooms (Brown et al., 2006; McCarty et al. 1998). When taken together these studies show that teachers' developmentally appropriate beliefs and practice promoted more play orientated practices adapted to children's needs.

The Quebec study *Grandir en Qualité* found many links between process quality and the qualifications of the educators. In general, educators with a post-secondary education demonstrated higher global quality for preschoolers in CPE and daycares. More specifically, they showed higher levels of quality in the dimensions of *structure of the environment* which includes a sub-dimension related to materials and *structure and variation of the type of activities* for preschoolers in daycares, facilities, and home centres. For infant age groups, teachers' professional development seemed to have a stronger impact on the quality (Bourgon & Lavallée, 2004b; Drouin et al., 2004). Educators with

post-secondary education reportedly provide children with appropriate environments, play materials and activities that are conducive to their domains and levels of development. Noteworthy, is the fact that higher global indicators of quality were found in infant classrooms where the educator possessed a specialized college diploma versus a university degree which may point to specialist CEGEP programs being recognized as the preferred preparation of educators for their work with infants.

Burchinal et al., (2002) examined the quality of 553 child care classrooms in four regions of the U.S.A. and found that quality was related to the educators' level of formal training and workshop attendance. Educators with formal education in early childhood or who attended workshops provided higher quality care, their classrooms received higher ratings of quality and it was also found that children from those classrooms displayed advanced language skills (Burchinal et al., 2002). Specifically, bachelor degrees were found to be the best predictor of higher quality skills in educators. Professional development workshops were found to help increase the quality rating, although not as much as formal training, and so the authors suggest that workshops may be an "effective mechanism for improving child care quality" (Burchinal et al., 2002, p. 10). In their seven-country analysis, Montie et al. (2006) found that for each standard deviation increase in educators' full time education, there would be a .07 point rise in the children's language scores at seven years of age (Montie et al., 2006).

Studies also examined not only the level of post-secondary education, but the area of specialization of the training since it seems to foster more expert knowledge and developmentally appropriate practice. The Canadian *You Bet I Care!* revealed that an ECCE-specific education was a significant predictor of infant and preschool classroom quality as assessed by the ITERS and the ECERS-R (Goelman et al., 2000; Goelman et al.,

2006). Educators with specialist qualifications in ECE (or who met the recommended qualifications accepted by the government) demonstrated higher global quality ratings in most types of centres but more specifically, specialized educators demonstrated higher quality in the *structure and variation of the type of activities* and *educators' interactions with parents* in preschooler rooms in CPE and daycares (Drouin et al., 2004, p. 437). This could indicate that educators who received specialized training are more knowledgeable about how to plan developmentally appropriate routines and activities and consequently support children's play.

In their review of empirical studies published from 1980-2005, Fukkink and Lont (2007) examined components of training correlated with educator quality and global quality. Even though past literature sometimes found inconclusive or contradicting associations between specific training and knowledge and practice, usually caused by challenges with discerning external variables, the present review did find positive correlations. The review of 17 articles reports that specialized training improves educators' pedagogical competencies and has a positive effect on children's behaviour. One interesting finding is that educators with specialized training in ECE encouraged children's initiatives and created a stronger play based and developmentally appropriate practice than other educators without specialist training (Fukkink & Lont, 2007). Consistent with findings from Drouin et al. (2004), this implies that specialized training may provide educators with better knowledge about how to appropriately support children's play as well as how to provide appropriate play materials based on their needs.

Saracho and Spodek (2007) performed a critical analysis of 40 studies done between 1989 and 2004 on early childhood educators' training and the consequent quality of their classroom or program. Their rationale stemmed from evidence that training for early

childhood educators and hence the level and quality of their knowledge about children's development and early childhood education in general, had a direct impact on the quality of their EC classrooms and programs (Daniels & Shumow, 2003; Doherty & Stuart, 1996; Drouin et al., 2004; Kim, 2005; McMullen & Alat, 2002; Saracho & Spodek, 2007). Their review of the literature revealed that educators holding Bachelor degree qualifications, engagement in professional development, and the existence of educational standards are the main elements that impact the quality of the ECE programs and predict children's developmental outcomes. In addition, an ECE specialization better prepared educators to provide a developmentally appropriate environment and plan and provide appropriate activities that stimulate all domains of development (Saracho & Spodek, 2007).

The field has recognized the need for more advanced and specialized education which is usually associated with stronger knowledge of child development. However, one study that conducted an evaluation of seven research projects to determine if teachers' education would predict classroom quality and children's academic outcomes, found contradicting results (Early et al., 2007). This study actually revealed that professional development seemed to have more impact than possessing an initial bachelors degree and suggested that policies should not only focus on increasing the level of teacher education, but rather, should focus on providing more support and professional development specific to the needs of each educator. Drouin et al. (2004) had previously claimed that involvement in professional development was associated with higher quality.

The level of education of the educator, which is considered part of the *structural* quality seems to be a good predictor the *process* quality in American and Canadian programs and specialization of the training has also been shown to have major impact on the quality, especially in relation to the providing developmentally appropriate

environments, play materials, activities and interactions (Barnett, 2003; Doherty et al., 2000; Drouin et al., 2004; Goelman et al., 2000; 2006; Japel, et al., 2005; Sylva et al., 2004).

In summary, early childhood educators must achieve a high level of professional sophistication and knowledge through formal education programs that “a) are explicitly linked to early childhood education; b) offer a strong knowledge base in appropriate teaching practices and child development ; and c) teach them to use developmentally appropriate practices that help children to build on their emerging understandings and skills” (Saracho & Spodeck, 2006, p. 430).

Given that educators are the core component of quality classroom and more importantly, are the key influence on children's experiences in the classroom, the field of education strives to prepare ECEs and teachers most effectively (Whitebook et al., 2009). Unfortunately, research has done little to resolve the issue about what should be the best training. Many studies suggest that specialized and lengthy training in ECE promotes more positive child outcomes and higher classroom quality but some recent studies suggest that the effects are minimal, null or inconsistent. Hence, since studies have shown the significant relation between educators' education level and specialization in ECE with quality, it seems reasonable to consider the knowledge gained through specialized programs does add value to the preparation of educators for ECE.

Educators' Knowledge. Research has revealed strong and consistent relations between early childhood educators' level of education, degree of specialization and the consequent quality of their interactions and classroom environment which all impact young children's outcome (Burchinal et al., 2002; Drouin et al., 2004; Fukkink & Lont, 2007; Goelman et al., 2000; 2006; Saracho & Spodeck, 2007; Whitebook, 2003a; 2003b;

Whitebook et al., 2009). One consensus is that educators with higher education and more advanced education specialized in early childhood education not only display higher quality classrooms and interactions but they also seem plan and adapt their environment, play materials and activities according to the children's needs. These developmentally appropriate behaviours suggest a stronger knowledge and understanding of children's development.

The importance of educators in ECE centers possessing strong knowledge of child development is supported by the inclusion of child development courses in all programs associated with teacher education. Most programs use an integrative approach which draws on the best, most valid, and recognized teachings of a range of theories (e.g., psychoanalysis + behavioural + cognitive + humanist + ecological + ethnological). Recently, teacher education, including early childhood teacher education programs have "refocused on child-centred practices identified with constructivist, social constructivist or ecological theories" (Daniel & Shumow, 2003, p. 96; McDevitt & Ormrod, 2008).

As an example, developmentally appropriate practice, which is the prevalent approach used in ECEC and the foundation of any quality setting, compels educators to be flexible in the approach or theories they use to be able to adapt to each child's development. DAP is based on three main areas of knowledge the first one being; knowledge of child development and learning (Copple & Bredekamp, 2009). The NAEYC has recognized that the knowledge and decision making of an early childhood educator is at the core of educational effectiveness but they state that "many teachers themselves lack the current knowledge and skills needed to provide high-quality care and education to young children, at least in some components of the curriculum (Copple & Bredekamp, 2009; NAEYC, 2009a, p. 5).

Nevertheless, much controversy exists surrounding *what* exact knowledge is necessary and *how* exactly they acquire this knowledge. Cognitive scientists have explained knowledge mainly in terms of *declarative* and *procedural* knowledge (Anderson, 1980). Scardamalia & Bereiter (2006) describe *declarative* knowledge or knowledge *about*, as “knowledge you can retrieve when prompted to state what you know about” (p. 106) a specific topic which is what most academic programs/institutions through subject-matter tests and *procedural* knowledge, which the authors describe as knowledge *of*, requires the individual to have the ability to take action and know *how* to do something.

Most past studies have investigated the relation between specialized training in early childhood education which has been shown to increase the quality of the educator and the classroom, however, less is known about what specific content of the training program is most useful to increase quality (Daniels & Shumow, 2003; Drouin et al., 2004; Fukkink & Lont, 2007; Saracho & Spodek, 2007; Whitebook et al., 2009). A recent review of the literature on training and professional development in early childhood education was conducted by Sheridan et al. (2009). Sheridan reports that very few empirical research studies focus on *how* early childhood educators acquire knowledge and skills and she argues that more studies are needed on “how learning and skill acquisition can be accomplished in the early childhood professional context” in an effort to identify possible research questions to investigate (Sheridan et al. , 2009, p. 387).

Knowledge of theories of child development can shape educators' attitudes, and philosophies of education, and may help understand children's development and behaviours. Conversely, strong knowledge of age specific developmental milestones may offer more concrete, clear-cut, and easy to follow “guidelines” about children's

development, which may assist educators in making accurate decisions about appropriate play materials, learning environments and activities.

Educators' knowledge of theories of child development and of developmental milestones or indicators can be seen as critical factors affecting child care quality. Further, specialized training in early childhood education can be seen as a good indicator of an educator's level of knowledge since programs includes courses on these topics (Daniels & Shumow, 2003; Doherty & Stuart, 1996; Drouin et al., 2004; Fukkink & Lont, 2007; McDevitt & Ormrod, 2008). The extent to which knowledge about development and learning is applied in educators' practice is an important factor in the quality of EC programs (Burchinal et al., 2002; Copple & Bredekamp, 2009; Drouin et al., 2004; Saracho & Spodek, 2007).

According to Doherty and Stuart (1996), "training makes a critical difference in the quality of child care programs and this has been demonstrated extensively in a large number of large and small scale studies" (p. 161). Appropriate training in early childhood education or related fields of study (e.g., child study, psychology) at a post-secondary institution has been shown to predict: educators use of developmentally appropriate practices; the enactment of a more child centred program; and, the provision of a caring and supportive environment for the children's development (Trepanier-Street, et al., 2007). In the past decades, it has been assumed that knowledge of child development is essential for early childhood educators (Katz, 1996). According to Dahlberg, Moss and Pence (2007), "'development' and 'quality' are quintessentially modernist concepts" and developmental psychology and quality in early childhood education and care "have fitted like hand in glove" (p. 100). Which aspect of developmental psychology or child development educators should know is debatable; is it more important for an ECE to know

the theories behind their practices? Or know each milestone children can attain?

Interestingly, studies investigating parental knowledge of child development most often assesses their knowledge of developmental milestones as a way to estimate how much they know about their own children's development (Rikhy et al., 2010).

Some speculate that having a strong understanding of developmental milestones or indicators helps educators select appropriate play materials as well as to plan and implement activities according to the children's genuine needs. Developmental milestones are major markers or points of accomplishments which track the emergence of skills for each area of development (Allen & Marotz, 2010) and are defined as "a set of functional skills or age-specific tasks that most children can do at a certain age range" (University of Michigan Health System, 2009, p. 2). Indicators are defined as "behaviours or comments that are markers of what a child knows or does that show a particular skill is emerging, being practised or elaborated" (Best Start Expert Panel on Early Learning, 2007, p. 89).

Typically developing children demonstrate these milestone behaviours at approximately the same age (i.e., age range) and the behaviours appear in somewhat orderly steps and although these skills or milestones are influenced by biological maturation, they cannot develop independently of the environment. Consequently, to support children's growth, learning environments must include appropriate play materials and be overseen by an educator who is knowledgeable about the developmental milestones and who demonstrates developmentally appropriate practice (Allen & Marotz, 2010; McDevitt & Ormrod, 2008).

ECEs who can remember and identify (i.e., declarative knowledge) as well as make use of the correct developmental milestones, which would be viewed as strong or good knowledge of developmental milestones, would be able to make early detections and

therefore early interventions for children who may be demonstrating physical, cognitive or social-emotional disabilities. These educators can establish if a child requires special attention or resources and also be better able to determine and plan what the child requires to achieve the next milestone, stage, and skill level through opportunities for practice. It is important for young children to reach each milestone in order to develop to their full potential.

The *Early Learning for Every Child Today: A Framework for Ontario's early Childhood Settings* bases its framework on the *Continuum of Development* which “describes predictable sequences of development within broad domains of development” and the understanding that indicators of development are the foundation of any program, planning or interaction (Best Start Expert Panel on Early Learning, 2006, p. 21). Therefore, educators must be able to identify specific developmental milestones to understand each child's outcome standard and to be able to assess children's development in order to set goals and plan appropriate activities and ensure that they are meeting the needs of each child (Best Start Expert Panel on Early Learning, 2006; Shipley, 2002).

In addition, since the purpose of most early childhood programs, (e.g. the Quebec Educational Program or *Jouer C'est Magique*), is to improve all aspects or areas of a child's development, and meet the needs of each child, current ECE practices require educators to also be knowledgeable about each domain of development (i.e., cognitive/language, socio-emotional and physical) to ensure the development of the “*whole child*” (Garipey, 1998; Gouvernement du Quebec, 1997; 2007b; Japel et al., 2005). Combined with knowledge of age specific developmental milestones, educators can have an accurate estimate of the rate of development and therefore a better understanding of how

to support children's optimal development by having appropriate expectations as exhibited by their practice, behaviour, activities, play materials and learning environment.

Educators' Beliefs and Practices. As mentioned above, one important predictor of high quality child care is well prepared educators. In addition to the levels of education, specialization, and knowledge, of the educator, classroom quality has been associated with educators' beliefs and practices of developmentally appropriate practice (Bryant, Clifford, & Peisner, 1991; Kintner, 2008; Lambert et al., 2006; McCarty et al., 2001; Saracho & Spodek, 2006; Vartuli, 1999).

Educators' personal beliefs play an important role in their actual teaching practices and a moderate to strong relationship between educators' beliefs, practices and the observed quality of their classroom have been demonstrated consistently (Charlesworth et al., 1991; 1993; Lambert et al., 2006; Maxwell et al., 2001; McCarty et al., 1998; 2001; McMullen et al., 2006; Pajares, 1992; Vartuli, 1999).

Interestingly, beliefs are defined as "tacit, often unconsciously held assumptions" (Kagan, 1992, p. 65) yet studies reveal that educators report their beliefs as being more developmentally appropriate than their reported practices, both of which are self-reported as more developmentally appropriate than their actual practice (Heisner, 2008, p. 51). In a study about beliefs about practices, twenty-one early childhood educators working with toddlers were videoed and interviewed about their practice. It was revealed that most educators identified the affective/caring functions as the most important feature of their practice with toddlers (Berthelsen & Brownlee, 2007).

According to Charlesworth et al. (1993) “beliefs teachers have regarding what is important and not important and how these beliefs affect their students is critical to understanding the genesis of teachers' actions in planning, teaching, and assessing” (p. 19). One of the most widely used tools to assess developmentally appropriate beliefs and practices is the *Rating Scale for Measuring the Degree of Developmentally Appropriate Practice in Early Childhood Classrooms (3-5 year olds)* (Burts, Buchanan, Charlesworth, & Jambunathan, 2000).

In 1991, Charlesworth et al. developed a questionnaire entitled *The Teacher Questionnaire (Teachers' Beliefs Scale and the Instructional Activities Scale)*, based on, what were at that time, new guidelines for developmentally appropriate practice (DAP) in early childhood education established by the NAEYC (1987). This questionnaire assessed teachers' beliefs and practice of the DAP guidelines. The research team administered the questionnaire to 113 kindergarten teachers to verify its reliability and validity. Positive correlations were found between teachers' appropriate and inappropriate beliefs and practices (i.e., activities) and teachers with higher ratings reported feeling more in control of their classroom planning and implementation of instruction. Subsequently, in 1993, the Charlesworth et al. team administered the questionnaire to 204 kindergarten teachers and also conducted 20 classroom observations. The study confirmed that the questionnaire demonstrated good psychometric properties and was found to be reliable and valid. Results supported findings from 1991 in which positive correlations were found between teachers' beliefs and practices and classroom observations confirmed the reported beliefs and practices. Using 375 surveys completed by kindergarten teachers, Kim (2005) examined the psychometric properties (i.e., internal consistency and content, criterion, and construct validity) of the revised measure and found this survey to be a reliable and valid assessment

of beliefs and practices of the revised 1997 NAEYC guidelines for DAP (Kim, 2005). Many studies in the past two decades have used this rating scale and it has been found consistently to be reliable and valid in gathering self-reports from educators and correlating these with other factors such as classroom observations, quality ratings and/or child outcomes.

Educational training in any field can provide students with suitable information and knowledge however the use of this information and knowledge in a classroom context often relies on the individual's beliefs since beliefs have been consistently shown to be good predictors of behaviours (Charlesworth et al., 1991; McCarty et al., 2001; Pajares, 1992). In education in particular, teachers often rely on their prior knowledge and/or past experiences, often basing their practice on their own upbringing and experiences in school and not necessarily on what is considered to be best practices or what is best for the children's well being. Some findings suggest that specific professional developmental or training such as the Child Development Associate (CDA) may help educators exhibit fewer developmentally inappropriate beliefs and practices which can in return, positively impact the classroom quality (Heisner & Lederberg, 2010). In service training was found to increase the use of scaffolding in the classrooms of Korean kindergarten teachers but even more in DAP teachers' than for DIP teachers (Lee et al., 2006).

Two major studies across the US revealed positive relationships between educators' beliefs, practices, and classroom quality (Brown et al., 2006; McCarty et al., 2001). Both studies measured preschool teachers' developmentally appropriate beliefs and practices by using the *Teacher Beliefs and Instructional Activities Scale* (Burts, 1991) and the *ECERS-R* (Harms et al., 1998). McCarty et al. (2001) examined Head Start teachers' and collected data from 185 teachers in 190 classrooms. Their self-reported DAP beliefs and practice was

then correlated with observed teaching practice. Findings revealed that teachers' beliefs and practices directly contributed to the quality of the classroom whether it was low, moderate or high quality. Self-reported inappropriate beliefs and practices were associated with lower quality (McCarty et al., 2001).

Brown et al. (2006) observed teachers from 4-K and 5-K classrooms in South Carolina and the findings show that teachers who earned a degree in ECE reported more developmentally appropriate beliefs and practices. Further, beliefs and practices which were more developmentally appropriate were associated with higher ECERS-R scores. Remarkably, teachers who initially score high on appropriate beliefs and practices and who received high quality scores in Time 1, reported making more changes to their classroom after the initial ECERS-R training and the quality of their classroom had improved in Time 2 (Brown et al., 2006). This significant finding could mean that educators who display appropriate beliefs and practices will not only provide young children with a higher quality learning environment but they seem to be more active in continuing to perfect their environment and practices.

As mentioned previously in this chapter, a practice that is developmentally appropriate is considered to be best practice in contemporary times (NAEYC, 2009a). Early childhood educators with stronger beliefs about DAP have been found to be more likely to implement developmentally appropriate practices than educators with weaker beliefs about DAP and training as well as professional development has been found to contribute to these beliefs (Bryant, Clifford & Peisner, 1991; Charlesworth, et al., 1991; 1993; Heisner & Lederberg, 2010; Kintner, 2008; McCarty et al., 2001; McMullen, 1999; McMullen et al., 2006; Oakes & Caruso, 1990; Spidell-Rusher, McGrevin, & Lambiotte, 1992; Stipek & Byler, 1997; Trepanier-Street, et al., 2007).

Strong correlations were found between reported and observed DAP beliefs and practices (Kim, 2005). Based on this premise, the present study set out to investigate EC educators reported knowledge of DAP which was hypothesized to give a good indication of what happens in the classroom. All variables in the present study are based on reported knowledge, beliefs and practices by the educators. Past research has shown strong correlations between reported and observed knowledge, beliefs and practices and resulting quality (Brown et al., 2006; Cassidy & Lawrence, 2000; Charlesworth et al., 1993; Kintner, 2008). Since higher education has been linked to more developmentally appropriate beliefs and practices and higher classroom quality, then stronger knowledge of child development would probably help educators provide developmentally appropriate materials for the children in their classrooms which is what the present study sought to reveal.

In Quebec, certain aspects related to the concept of active learning were found to be weak in educators and may have affected their practice of encouraging children's to learn through play. It is not known if this directly affected the quality of their classroom although the authors hypothesized that it was related to the quality of their interactions with the children (Bigras et al., 2004).

Child Care Quality in Canada

The previous sections of this chapter established that high quality early childhood education and care (ECEC) is associated with multiple developmental benefits and that environmental, program and educator characteristics influence, directly or indirectly, the quality of the classroom as well as the quality of children's experiences in these classrooms.

The state of the quality of early childhood education and care (ECEC) in Canada is both surprising and understandable. Canadian programs and centres are on average

considered to be of *mediocre* quality which is surprising for an industrialized and developed country but Canadian provinces cannot seem to agree on the value, purpose or goal of ECEC. Hence, the country has not come together to create an approach, or a unified system as suggested by the OECD in 2001 and 2004, which creates funding as well as logistic and operational problems and which McCain, Mustard and Shanker (2007) describe as a “chaotic” system (Friendly, & Prentice, 2009; Goelman et al., 2000; 2006; OECD, 2001; 2004; 2006).

According to the 2004 OECD report, the ECEC system in Canada is regularly at the mercy of political preferences regardless of the needs of the population. The report indicates that Canada’s investment in child care is insufficient, causing centres to be low quality, in low-rent buildings, and include inappropriate materials and resources of doubtful learning quality.

The largest and most comprehensive Canadian ECEC study which included the examination of quality is the 1998 project *You Bet I Care* (YBIC) (Doherty et al., 2000; Goelman et al., 2000; 2006). The project included three studies (Study 1- Wages and practice; Study 2- Quality child care; Study 3- Family Care). Study 2 included a sample of 239 commercial and non-profit centres (48 in Quebec) with 326 classrooms (115 infants/211 preschool) across six provinces and one territory (i.e., Alberta (5.12), British Columbia (5.56), New Brunswick (3.99), Ontario (4.94), Quebec (4.69), Saskatchewan (4.09), and Yukon Territory (4.89)). This study focused on identifying factors that could predict quality. Overall, the study reported that the classrooms were safe and caring environments but ECEC was found to be of *minimal* or *mediocre* quality across the country. Infant classrooms received on average 4.4 out of 7 (ITERS) and preschool classrooms received on average 4.71 out of 7 (ECERS-R) (Goelman et al., 2000). More

specifically, only 44% of preschool and 29% of infant/toddler classrooms offered activities and materials appropriate for children's development (Goelman et al., 2000).

In 2006, Goelman et al. investigated possible predictors (i.e., direct and indirect) for the level of quality found in the 1998 study. Direct predictors were educators' level of ECCE education as well as wages whereas adult-child ratios and auspices were indirect predictors. Indirect predictors were defined as not contributing directly to the quality of the child care as a causal pathway, but as being significant contributors to the "direct" predictors (Goelman et al., 2006).

Child Care Quality in Quebec

The quality of child care centres in the province of Quebec has also been the focus of various early childhood projects in recent years. In Canada, Quebec is considered the pioneer for high quality and affordable child care with the most detailed child care regulations and policies, and it is also the only province that offers an educational program for early childhood settings developed by the Government of Quebec (Friendly, & Prentice, 2009; Gouvernement du Quebec, 1997; 2007b). In 2004, the OECD reported in 2004 that Quebec "accounts for about 40% of regulated child care places in Canada, and has recorded the only significant growth of ECEC services over the past decade" (p. 5) and the province has maintained that trend.

In the past decade, two major studies were conducted with regard to the quality of child care centres across the province of Quebec. The longitudinal study *La qualité, Ça compte!* (Quality Counts) (Japel et al., 2005) and the *Grandir en Qualité* (Drouin et al., 2004). Both studies reported that the majority of settings received *mediocre or minimal quality* scores overall and most received *low to average low* scores on the play materials section.

Since 1998, the Quebec Longitudinal Study of Child Development has been investigating the development of 2,223 children from five months of age to monitor their development and to determine factors that may impact their adaptation to school. As part of this larger project, the study investigated the quality of child care services between 2000-2003 while the children were between two and a half and five years of age and evaluated 1540 child care settings of various types (i.e., Centre and Home based CPEs, for-profit daycares and unregulated home based settings). Overall, the *La Qualité, Ça Compte!* reports revealed that child care services across the province were of *minimal* quality where the CPEs achieved higher quality scores and for-profit daycares and unregulated home based settings received lower quality scores (Japel et al., 2005). The centers received low scores on the *materials available to the children* subscale because the materials were judged to be generally not stimulating or to be inappropriate for the children's level of development (Japel et al., 2005). In particular, educators in every type of child care setting had weak competencies relating to the development of language and reasoning skills and therefore the frequency and variety of educational activities, as well as the quality and quantity of play materials related to this domain was poor (Japel et al., 2005).

The largest research project investigating the quality of settings specifically in Quebec was *Grandir en Qualité*, which investigated the quality of 905 early childhood settings (i.e., CPE [in facilities <18months, in facilities 18months - five years, home], daycares [<18months and 18months - five years]) (Drouin et al., 2004).

The investigators used a new assessment tool which they developed to better fit the realities of Quebec settings, rather than the ECERS-R generally used in research to investigate the quality of child care settings. The observation tool, the *Educative Quality Observation Scale (EQOS)* was created by Bourgon and Lavallee (2004a; 2004b) and it

included four main dimensions and nine sub-dimensions;

1. Structure of the environment (1.1 arrangement of environment, 1.2 Materials);
2. Structure and variation of the type of activities (2.1 planning of the activities by the educator/RSG, 2.2 Observation of children by the educator/RSG, 2.3 Daily schedule, 2.4 Activities) ;
3. Interaction of the educator/RSG with the children (3.1 Value of play, 3.2 democratic intervention, 3.3 Communication and interpersonal relations)
4. Interaction of the educator/RSG with the parents (Drouin et al., 2004, p. 74).

The study examined the quality of each type of child care as well as collectively. Overall, the findings show that the quality of settings across the province was *mediocre* however many variations were found according to the type of setting. With regard to infant care, 60.6% of CPE in facilities received *good/very good* quality ratings whereas 62% of daycares received *mediocre* quality ratings. For preschooler care, 52.7% of CPE in facilities received *mediocre* and 41.8% *good/very good* quality ratings, and 51.9% of daycares received *mediocre* and 37.4% *good/very good* quality ratings. The home settings received 60.0% *mediocre* and 20.9% *unsatisfactory* which is most distressing (Bigras & Cantin, 2007; Drouin et al., 2004).

Particularly pertinent for the present study is the sub-dimension regarding *materials* which received a *low to average* score across all settings. Too few materials, too little equipment and a lack educational materials to foster all the domains of development were found in CPE in facilities- preschool rooms, as well as in daycares, in both infant and preschooler rooms, which also lacked material related to language and psychomotor development in particular, and home settings lacked psychomotor materials (Drouin &

Fournier, 2004a;b;c; Drouin et al., 2004). Another alarming finding in all types of settings was educators' weakness in fostering play and activities mostly due to the lack of appropriate play materials or lack of positive encouragement or guidance towards independent play.

Child care settings across the province were rated as *mediocre* or *minimal* quality and some of the weaknesses are disconcerting. In their discussions, the authors from both studies suggested that the lack of activities and play materials for specific areas of development might be due to the educators' lack of knowledge or inability to transfer declarative knowledge into practice. They suggested that training for educators should be improved and that their knowledge of child development and how to provide developmentally appropriate activities and materials, especially with regard to language and cognitive development, must be strengthened (Bigras & Cantin, 2007; Doherty, 2005; Drouin et al., 2004; Goelman et al., 2006; Japel et al., 2005). In addition, according to the provincial educational program, educators should provide activities and play materials that promote the global development of young children but this was not found to be the case (Bigras et al., 2004; Japel et al., 2005; Gouvernement du Quebec, 1997;2007b).

Additionally, the Canadian *You Bet I Care!* (Oui, ça me touche!) study conducted in 1998-1999 included data from Quebec (Goelman et al. 2000;2006). The investigators assessed 16 infant rooms, 32 preschool rooms and 42 home daycares and Goelman et al. (2006) used the data to examine and compare the quality of child care centre across Canada and generate a "predictive model of quality child care" (Goelman et al., 2006, p. 281). The authors reported that Quebec centres obtained an average of 3.7 out of 7 for infant care (ITERS) and 4.69 out of 7 for preschool care (ECERS-R) which indicates *minimal* and *mediocre* quality respectively.

Interestingly, the province developed a booklet for parents to use when they are selecting a child care centre for their child. The booklet includes a checklist that parents can use to look for specific things and include information on the educators' training and experience, services offered, and the government funding. Parents are advised to take account of interactions between the educators and the children, health and safety provisions, and activities. Most importantly in relation to the present study, is that the guide includes, under the sub-title "essential elements to look for in the learning environment", elements such as: play materials are varied; of sufficient quantity; age appropriate; and, that children can access them at all times (Gouvernement du Québec, 2007).

Consequently, it is hypothesized that the lack of play materials, as well as the weaknesses found in the educators' competencies in Quebec stem from their variable knowledge of developmental milestones and developmentally appropriate practice. Early childhood educators who do not possess the necessary knowledge of developmental milestones would be more likely to use developmentally inappropriate practices since DAP is based on the ability to process and work with strong knowledge of developmental milestones. An educator with weak knowledge of child development and who does not adhere to developmentally appropriate principle would thus encounter difficulties in choosing appropriate play materials and activities.

The present study therefore attempted to identify potential elements of quality to understand the influences of the *process* quality of Quebec classrooms, specifically, the selection of appropriate play materials (Goelman et al., 2006). Sutterby and Frost (2006) stated that "selecting play materials for use in the classroom is one of the most important tasks of teachers" (p. 307) therefore it was important to explore how early childhood educators are making their selections.

Summary Statement and Research Questions

This study begins with the premise that early childhood education and care programs and centres in Quebec generally reveal a lack of developmentally appropriate play materials which in turn impacted the level of quality of the classrooms (Drouin et al, 2004; Japel et al., 2005). One predictor of quality may be the educators' knowledge and their developmentally appropriate practice (Bredekamp & Copple, 1997; Copple & Bredekamp, 2009; Daniels & Shumow, 2003; Doherty & Stuart, 1996; Drouin et al., 2004; Trepanier-Street, et al., 2007). Therefore, this study examines the relationships between educators' knowledge of developmental milestones and appropriate play materials and their beliefs and practices of DAP. In so doing, this study specifically addresses the following research questions:

1. What is the relationship between educators' knowledge of developmental milestones (KDM) and the knowledge of appropriate play materials (KPM)?
2. What is the relationship between educators' knowledge of developmental milestones (KDM) and their beliefs and/or practices of developmentally appropriate practice (DAP)?
3. What is the relationship between educators' knowledge of appropriate play materials (KPM) and their beliefs and/or practices of developmentally appropriate practice (DAP)?

The alternate hypotheses related to these research questions are;

1. Educators' knowledge of developmental milestones (KDM) is related to their knowledge of appropriate play materials (KPM).
2. Educators' knowledge of developmental milestones (KDM) is related to their developmentally appropriate beliefs and practice (DAP).
3. Educators' knowledge of appropriate play materials (KPM) is related to their developmentally appropriate beliefs and practice (DAP).

Chapter III

Methodology

The purpose of this study was to examine the relationships between Quebec educators' knowledge of developmental milestones (KDM), knowledge of appropriate play materials (KPM) and their beliefs and practices of developmentally appropriate practice (DAP). The present chapter includes information regarding the research design, instrument, procedure, sampling and participants, preliminary data preparation, scoring and statistical analysis.

Research Design

Use of a survey was considered well suited for the present study since it enabled the researcher to generate data on the participating educators' knowledge, beliefs, and practice. Survey research allows for anonymous participation and is best suited for canvassing opinions and feelings about specific issues (Creswell, 2002; Muijs, 2004). A survey also facilitates contact with participants in rural and secluded regions and therefore helps to recruit a larger number of participants representative of an entire province (Creswell, 2002; Muijs, 2004). In addition, the use of standardized questions allows for comparability among participants and according to a number of variables such as qualification and number of children in classroom (Muijs, 2004).

The effect of child care quality on children's development has been well documented and established in literature for the past decade and therefore it was determined that, for the present study, there was no need to once again relate the elements that may influence the quality (e.g., educators' knowledge, beliefs, and practice) directly to children's development (Baillargeon et al., 2003). In addition, two recent major research studies in the province of Quebec established the state of the quality of child care centres and revealed

low incidence of play materials (Drouin et al., 2004; Japel et al., 2005). Taking the findings of previous studies identifying the lack of play materials in Quebec centres as a starting point, this study investigated educators' knowledge of developmental milestones and knowledge of appropriate play materials and their beliefs and practice about developmentally appropriate practice. This study focused on the educators' characteristics such as their level of knowledge and of DAP that could potentially influence the quality of child care centres rather than on the quality of the centre per se.

Instrument

The research instrument used to gather the data was a survey questionnaire largely developed by the investigator with one section based on a survey constructed by a team of researchers at Louisiana State University (Burts et al, 2000; Charlesworth et al. 1991; 1993; Kim, 2005). The survey comprised 156 questions divided into seven sections;

- 1) Classroom Play Material Practice (39)
- 2) Developmental Milestones and Play Materials (32)
- 3) Developmentally Appropriate Practice: Beliefs and Practice (60)
- 4) Personal Information (4)
- 5) Education (6)
- 6) Career in Early Childhood Education (6)
- 7) Current Position in Early Childhood Education (9)

The online survey included an information letter and consent page, and the main survey (see Appendix B and C).

One section sought educators' demographic data including: personal information (e.g., age, degree, language abilities, ethnic background), duration of career in ECE (e.g., years of experience), and current position in ECE (e.g., type of child care centre, region,

number of children and age group). This section was based on the questionnaire used in Quebec *Grandir en Qualité* study (Drouin et al., 2004).

The section generating data on educators' knowledge of developmental milestones (KDM) and knowledge of appropriate play materials (KPM) required the educators to match 16 developmental milestones with the appropriate age group and the appropriate play material (Allen & Marotz, 2000; 2007; Bronson, 1995). This section assessed educators' *declarative* knowledge asking them:

For each statement, indicate how old you think the child is to be displaying this skill (between 12-60- months) and what would be the most appropriate play material to stimulate this skill at this age? e.g., Discovers cause and effect (Appendix B)

Four skills/milestones related to each age group (i.e., 12-24 months old, 24-36 months old, 36-48 months old , and 48-60 months old) and four skills/milestones related to each developmental domain (i.e., cognitive, physical, language, and social). The developmental skills or milestones included in the questionnaire were taken from *By the Ages and Developmental Profiles*, books which are widely used in ECE programs across Canada and which offer simple overviews of the main developmental milestones for each age group (Allen & Marotz, 2000; 2007). The play materials associated with each developmental skill were taken from *The Right Stuff*, a book published by the NAEYC and based on developmentally appropriate practice (Bronson, 1995). Internal consistency of the 32 items about knowledge was satisfactory with an average Cronbach's *alpha* of .79 which indicates relatively good internal consistency (Creswell, 2002; Muijs, 2004).

Finally, a section about developmentally appropriate practice: beliefs and practice comprised two subscales. The original version of these questions was taken from *The Teacher Beliefs and Practices Survey: 3-5 years old*, designed by a team of ECE professionals at Louisiana State University (Burts et al., 2000; Charlesworth et al. 1991;

1993; Kim, 2005). This rating scales has been used in multiple studies and has been found to a sensitive measure DAP (Heisner, 2008). The subscales pertaining to the beliefs (originally 36 statements) and practices (originally 36 statements) of DAP were used and were slightly modified by reducing the number of questions to 15 statements each for appropriate/inappropriate beliefs and practice. The reduction was conducted by eliminating statements that were redundant or not appropriate for the Quebec system. Furthermore, some of the wording in specific statements was modified to better suit the Quebec population (e.g., replacing “teacher” by “educator”, reflecting Quebec regulations, including groups of children from 1 to 5 years of age). The original 5-point scales were used. The internal consistency of the 60 items about developmentally appropriate beliefs and practice was satisfactory with an average Cronbach’s *alpha* of .82 which indicates relatively good internal consistency (Burts et al., 2000; Creswell, 2002; Kim, 2005; Muijs, 2004).

The *Beliefs Scale* consisted of 30 items and invited the educators to evaluate each item using a 5-point scale with the following anchors of degree of importance: 1 = *not at all important*, 2 = *not very important*, 3 = *fairly important*, 4 = *very important*, and 5 = *extremely important*. The items included both developmentally appropriate (15 items) and inappropriate (15 items) beliefs about early childhood practices (Burts et al., 2000; Kim,

The *Practices Scale* contained 30 items and inquired how frequently certain practices occur in their classrooms using a 5-point scale with the following anchors of frequency : 1 = *almost never* (less than monthly), 2 = *rarely* (monthly), 3 = *sometimes* (weekly), 4 = *regularly* (2-4 times a week), and 5 = *very often* (daily). The descriptions included both developmentally appropriate (15 items) and inappropriate (15 items) practices for early childhood classrooms (Burts et al., 2000; Kim, 2005).

Translation. Since the majority of early childhood educators and centres in the province of Quebec are francophone, the survey was translated from English to French by the investigator. The investigator is fluent in English and French and has experience in translating early childhood documents including questionnaires, research reports, and consent forms. The translation was then verified by one certified translator from York University as well as a CEGEP professor of early childhood education fluent in English and French.

Online. A popular and well accepted web based software named Survey Monkey was used to place the survey online. This was done to facilitate the recruitment and participation of more educators in all regions of Quebec with the goal of generating more data than paper based/mail in surveys. The investigator programmed each section of the survey, question, answer choice and scale as well as approved consent form and visual interface.

Procedure

Ethics. Prior to beginning the study or the recruitment process, the investigator obtained ethical clearance to conduct the study from the University of Ottawa Social Sciences and Humanities Research Ethics Committee who judged that the present study met appropriate ethical standards (File #05-08-24).

Pilot Study. The pilot study was conducted to improve the internal validity of the survey and verified the clarity of the questions, the translation of the survey, the coverage of the topic, and any technical issues with the online component and/or administration procedures. The survey was tested with six early childhood educators (i.e., two Francophone and four Anglophone) from Ontario. For the pilot testing, the survey included a “comment section” where participants were able to express any concerns or questions

they may have about the survey. Most of the problems that were identified were related to technical problems with the answer choices (e.g., not being able to choose the same answer twice) and the appropriate modifications were made.

Data Collection. The Web based survey was open to all EC educators across the province of Quebec. A brief message soliciting their participation was forwarded to them by their centre's administration and/or association and they were asked to complete the online survey pertaining to their knowledge of developmental milestones, knowledge of appropriate play materials and their beliefs and practice in relation to developmentally appropriate practice (see Appendix A).

The population was believed to be technologically literate and the majority of child care services in Quebec have computers in some classrooms and in the staff lounge, therefore educators most likely had access to a computer in their centre if they did not have one at home. In addition, as an incentive to participate, the educators were offered a manual (i.e., in French and English) at the end of the study which provides information about elements that could help increase the quality of their classroom. This manual will report the findings of the study as well as information regarding the importance of child development, developmental milestones, developmentally appropriate practice and appropriate play materials to support children's development. In all, 165 francophone educators and 10 Anglophone educators requested the manual which will be sent in 2011.

Sampling and Participants

Sampling. As of September 2008, the Government of Quebec reported that there were 209 827 places (203 998 subsidized and 5 829 not subsidized) for children in child care centres across the province (Beach et al., 2009; Gouvernement du Québec, 2008). There are approximately 26 228 early childhood educators working in child care centres in

the province of Quebec (209 827 children in child care /8 children per educator on average = 26 228 educators).

The participants in this study included early childhood educators from all 17 administrative regions across the province of Quebec (Abitibi-Témiscamingue , Bas-Saint-Laurent, Capitale Nationale, Centre du Québec , Chaudière-Appalaches , Côte-Nord , Eastern Townships/Estrie, Gaspésie/Îles-de-la-Madeleine, Lanaudière, Laurentides , Laval, Mauricie, Montérégie, Montréal, Nord-du-Québec, Outaouais, and, Saguenay- Lac-Saint-Jean). Educators from all six types of child care services available in Quebec were solicited; Centre de la petite enfance in facilities (CPE) - Reduced contribution, Daycare in facilities- Reduced contribution, Home child care coordinated by a coordinating office or by a local CPE, Centre de la petite enfance in facilities (CPE), Daycare in facilities, Home child care coordinated by a coordinating office or by a local CPE (Gouvernement du Québec, 2008). This ensured a varied sample of educators and allowed analyses to be done according to the type of child care service. Provincial regulations in Quebec stipulate that in CPEs, two thirds of the educators in the centre must be qualified and 50% of the educators in the classroom must be qualified, therefore the level of education and qualifications of the participants varied (Gouvernement du Québec, 2010).

Recruitment. The sample was obtained by soliciting child care centres and educators across the province mainly via email invitations. The recruitment of participants for the present study was conducted in multiple phases and lasted six months; two months to compile the list of contacts and four months of active recruitment from July to December 2008. Participants were re-solicited two months after the initial invitation.

During the first 2 months , the documents from the Government of Quebec were reviewed and a list of email addresses from registered child care centres as well as

coordinating offices, associations, federations, “regroupement” from each of the 17 regions were compiled. Internet searches were also performed to find other centres and email addresses.

Approximately 5000 electronic invitations were sent to child care centres across the province of Quebec (see Appendix A). Generally, the email was received by the administrator or owner of the child care centre who was asked to forward the message to the educators in their centre. This ensured the confidentiality of all educators since only the center email addresses were used.

In addition, an invitation message with a link to the online survey was posted on various contemporary social networking websites such as Facebook and ECE blogs in order to recruit more participants. Unfortunately, regional and provincial associations, and federations (e.g., CSQ, AQCPE, CQCPE, AGPQ) did not grant the investigator the possibility to post or publish the invitation on their Websites, magazines, and newsletters, while others charged large advertising fees.

Participants. Initially, 1082 participants (i.e., 4.2% of educators across the province) began the online survey or visited the survey Website but did not complete the survey entirely. Only 308 surveys were used in the analysis since only participants who completed the entire survey with no missing data were retained (i.e., 1.2% of educators across the province). These percentages presume that the entire population of educators across the province received an invitation. The exact number of educators who received the invitation is unknown.

Preliminary Data Preparation

The online survey was programmed in such a way that participants were forced to answer the question before they could move on to the next question. This was done to avoid missing data since each variable is a composite of several items and was interrelated with other composites so missing data would have rendered analyses impossible.

As the participants completed the survey questions in Survey Monkey, their answers were inputted automatically into spreadsheets. French and English versions were then combined and the Excel document was then transferred into the SPSS version 12 for Windows. The data merging and the transfer into SPSS were verified on three separate occasions by the investigator and two research assistants in order to assure that all the data were properly entered. Each variable was labelled according to the measure and the value associated with the variable.

Scoring. The survey included a combination of scales and direct answer choices. The data from the demographic questions comprised ordinal and interval data. The data pertaining to the knowledge of developmental milestones and appropriate play materials were interval data. Based on the works by Burts et al. (2000) and Kim (2005) who created the original survey, the data from the beliefs and practices of DAP were considered to be interval data assuming that there is equal distance between the scores and were normally distributed. Composites and total scores were summed in the same manner as in the original studies and similar statistical analyses were thus conducted (Burts et al. 2000; Kim, 2005, p. 106).

Knowledge of Developmental Milestones and Appropriate Play Materials. The knowledge scores were computed in the following manner. Answers which were established by the investigator and supporting literature as “correct” were scored 1 and

“incorrect” answers were scored 0 for each question regarding the age of the child related to the milestone and the appropriate play material for that skill and age group. Knowledge scores were composed of knowledge of developmental milestones and appropriate play materials and each knowledge according to the four age groups and four domains of development associated and then combined knowledge. In all, 27 composite variables were calculated and the sum can be found in Appendix D.

Beliefs and Practice of Developmentally Appropriate Practice. Participants answered questions about their beliefs and practice of DAP by choosing from 5-point scales with anchors of degree of importance for their beliefs and anchors of frequency for their practice. Both the *Beliefs Scale* and *Instructional Activities Scale* included 50% of items that were developmentally appropriate and 50% were inappropriate (i.e., 15 and 15 for each scale) (Kim, 2005). Therefore for items 6.1, 6.4, 6.6, 6.7, 6.8, 6.10, 6.11, 6.12, 6.13, 6.15, 6.16, 6.19, 6.28, 6.29, and 6.30 as well as items 7.8, 7.9, 7.10, 7.11, 7.12, 7.13, 7.14, 7.15, 7.16, 7.17, 7.18, 7.20, 7.22, 7.27, and 7.30, the numerical values were re-coded and inverted (e.g., 5 became a 1) to represent stronger beliefs about DAP and more frequent practices of DAP. Each subscale, beliefs and practices, included 30 items. For each subscale, a total score was calculated by tallying the answer value for each item (i.e., 1 to 5) (see Results). Composite variables were calculated by summing the individual scores therefore higher scores represented educators' stronger beliefs and practices of developmentally appropriate practices. In all, three composite variables were calculated and the sum can be found in Appendix D.

Statistical Analysis

Statistical analyses for the present study were conducted by using the SPSS software. Descriptive statistics about the participants and their classrooms were generated

to gain an overview of the population's demographics. Educators' knowledge of developmental milestones and appropriate play materials as well as their beliefs and practices of DAP were then computed to obtain a sum totals for knowledge and sum totals for DAP. These summed totals provided an overall level of knowledge and DAP, the higher the score, the stronger the knowledge and/or DAP.

Subsequently, ANOVA tests and independent T-tests were conducted by independent variables such as language, years of experience, years of experience before ECE degree, type of degree, and type of child care to determine if these independent variables had any effect on the dependent variables: educators' level of knowledge and DAP.

Finally, the study's three research questions (What is the relationship between educators' KDM and KPM? What is the relationship between educators' KDM and DAP? What is the relationship between educators' KPM and DAP?), were answered by using Pearson correlation tests. The main variables were knowledge of developmental milestones and knowledge of appropriate play materials as well as their beliefs and practices of DAP. More information about the data analysis may be found in the results chapter.

Chapter Conclusion

This chapter included information regarding the research design, instrument, procedure, sampling and participants, preliminary data preparation, scoring and statistical analysis. The following Chapter IV: Results will report the descriptive statistics and the quantitative analyses of the data.

Chapter IV

Results

This chapter reports the findings of the study and will be organized into two sections. The first section presents the descriptive statistics pertaining to the educators and their classrooms. The second section includes statistical analyses conducted to answer each research question.

Visual inspections of data plots through box plots and histogram, skewness, kurtosis, and normal Q-Q plots for each variable were performed to assess univariate normality. Variables KDM, KPM and DAP had approximate normal distributions but outliers were found between KDM and DAP and were deleted (Meyers, Gamst, & Guarino, 2006).

Descriptive Statistics

Educators and classrooms. A total of 308 early childhood educators participated in the study. See Table 1 for complete demographic information about the educators. The sample of 308 early childhood educators included 92.2% participants who completed the survey in French and 7.8% in English. In this sample, 98.1 % were women and 1.9 % were men which is representative of the population of ECE in Quebec, and 65.6% of the educators were aged between 25 and 39 years of age.

The majority of the educators identified themselves as Caucasian (59.4%) and 34.1% identified themselves as “other” from the list of ethnicities proposed by Statistics Canada while the other 6.5% were divided between the remaining ethnicities.

The highest qualification held by participating educators was a *Diploma of College Studies* (DCS) (45%), an Attestation of College Studies (ACS) (16.9%), a University Certificate (10.1 %), or a Bachelor's Degree (13.3 %). These descriptive statistics are

reflective of the qualifications of the general population of early childhood educators according to the Quebec 2007-2008 situation report on child care services (Gouvernement du Québec, 2009b).

Amongst the degrees recognized by the *Ministère de la Famille et des Aînés (MFA)*, 38.3% of the educators reported having a *Diploma of College Studies* in child care services, ECE or Daycare and 28.9% reported having an *Attestation of College Studies* in education in child care services (or early childhood education or daycare or family practice) plus 3 years of relevant experience. This data on educators' qualifications reflect the province's effort for the past 5 years to have 100% of educators in the classrooms qualified. In all, 16.2% of the sample population did not have any qualification recognized by the *Ministère de la Famille et des Aînés (MFA)*.

Table 1

<i>Educators' Demographics</i>		
	Frequency (N= 308)	Percent (N= 308)
Survey Language		
French	284	92.2
English	24	7.8
Gender		
Female	302	98.1
Male	6	1.9
Age		
18-24	22	7.1
25-29	75	24.4
30-39	127	41.2
40-49	59	19.2
50-59	22	7.1
60-65	3	1.0
Ethnicity		
Caucasian	183	59.4
East Asian	2	.6
South Asian	4	1.3
West Asian	2	.6
African	3	1.0
South African	1	.3
Arab	2	.6
Aboriginal	6	1.9
Other;	105	34.1
Highest Degree		
High School Diplomat (DES)	25	8.1
Attestation of College	52	16.9
Studies(ACS)		
Diploma of College Studies (DCS)	141	45.8
University Certificate	31	10.1
Bachelor's Degree	41	13.3
Master's Degree	8	2.6
Other	10	3.2
ECE Education Degree		
None	50	16.2
Diploma of College Studies in education in childcare services	59	19.2
Diploma of College Studies in early childhood education	49	15.9
Diploma of College Studies in Daycare	10	3.2

Attestation of college studies in education in childcare services		
OR early childhood education OR daycare OR family practice + 3-years of relevant experience	89	28.9
Bachelor's Degree in preschool education	6	1.9
Bachelor's Degree in preschool and elementary education OR early childhood and elementary education	10	3.2
Bachelor's Degree in psychology with a focus in child development OR Child Study	5	1.6
Bachelor's Degree in psychology, psychoeducation, orthopedagogy, adapted childhood OR special education	8	2.6
University Certificate in early childhood education + 3 years of relevant experience	22	7.1

In addition to general demographics, data was generated on the participants' careers, present position in ECE, and their classrooms. Most educators held a full time position at the time of the survey (92.9%), 79.2% had their own classroom which suggests they were the main educator in the classroom and most educators had between 1 to 15 years of full time experience (1-3 years (19.55%) , 4-7 years (34.7%), 8-10 years (18.2%), or 11-15 years (11.4%)). The majority of educators who participated in this study were working in a *Centre de la Petite Enfance* in facilities (CPE) at reduced contribution (67.2%) or Home child care associated with a coordinating office at reduced contribution (17.9%). This is generally representative of the early childhood educator population (Gouvernement du Québec, 2009b).

The sample generally reflected the distribution of the general population across each of the 17 regions of Quebec with Montreal (28.9%), Capitale Nationale (12.0%) and Montréalie (10.7%) having the largest representation which is very similar to the sample distribution found in Drouin et al, (2004, p. 70). Specific information about participating educators' classrooms included the number of children in per educator, and 64.3% of educators reported having 5-8 children per educator and most educators reported working with all age groups (35.4%) or with older preschoolers (48-60 months) (17.9%).

Interestingly, the majority of educators reported using the Educational program developed by the Government of Quebec (MFA) (58.8%) or the Jouer c'est magique/ High Scope (36.4%) approach which the provincial educational program is based on but only 0.6% reported using a Montessori approach and 0% Reggio Emilia/ Emergent Curriculum. These findings regarding Montessori and Reggio Emilia/Emergent Curriculum could simply mean that centres using these approaches were either not solicited or decided not to participate. See Table 2 for complete information about educators' career and classroom. All demographic data is comparable to the sample distribution found in *Grandir en Qualité* study (Drouin et al., 2004).

Table 2

<i>Educators' Career and Classroom Information</i>		
	Frequency (N= 308)	Percent (N= 308)
Type of Child Care		
Centre de la petite enfance in facilities (CPE) -7\$	207	67.2
Daycare in facilities- 7\$	20	6.5
Home child care coord. or CPE 7\$	55	17.9
Centre de la petite enfance in facilities (CPE)	8	2.6
Daycare in facilities	4	1.3
Home child care coord. OR CPE	5	1.6
Other	9	2.9
Position		
Full time	286	92.9
Part-time (e.g., substitute)	22	7.1
Years of Full Time Experience		
N/A	10	3.2
1-3 years	60	19.5
4-7 years	107	34.7
8-10 years	56	18.2
11-15 years	35	11.4
16-20 years	20	6.5
21-25 years	13	4.2
+ 25 years	7	2.3
Own Classroom		
Yes	244	79.2
No	64	20.8
Number of Children in Classroom/per educator		
1-4 children	11	3.6
5-8 children	198	64.3
8-12 children	90	29.2
12 + children	9	2.9
Classroom Age Group		
All age groups	109	35.4
Infants (0-12 m)	25	8.1
Young Toddlers (12-24 m)	38	12.3
Older Toddlers (24-36 m)	41	13.3
Young Preschoolers (36-48m)	40	13.0
Older Preschoolers (48-60m)	55	17.9

Approach		
Jouer c'est magique/ High Scope	112	36.4
Montessori	2	.6
Reggio Emilia/Emergent Curriculum	0	0
Educational program developed by the Ministère de la des Aînés (MFA)	181	58.8
Other	13	4.2
Region of Child Care		
Abitibi-Témiscamingue	4	1.3
Bas-Saint-Laurent	11	3.6
Capitale Nationale	37	12.0
Centre du Québec	25	8.1
Chaudière-Appalaches	28	9.1
Côte-Nord	9	2.9
Eastern Townships/Estrie	20	6.5
Gaspésie/Îles-de-la-Madeleine	1	.3
Lanaudière	5	1.6
Laurentides	8	2.6
Laval	10	3.2
Mauricie	1	.3
Montréal	33	10.7
Montréal	89	28.9
Outaouais	6	1.9
Saguenay - Lac-Saint-Jean	21	6.8

Play Materials. The educators in Quebec reported that play materials from major toy companies such as Fisher-Price/Mattel and Hasbro/Lego (78%) and from specialized/educational toy companies such as Manhattan toys and Jocus (84.4%), were appropriate for early childhood settings and educators reported that they were able to find appropriate play materials on the market for the children in their classroom (92.9%). Participants also reported that having a variety of play materials was the most important criteria for children's development (82.5%) versus the quality (41.9%) or the quantity (41.5%) of the play materials in their classroom. Interestingly, 92.8% indicated that the play materials in their classrooms were developmentally appropriate for the children in their classrooms.

Data about educators' practices related to the selection of play materials for their classroom was also generated through the survey. Educators reported that 79.8% of the time they *very often* or *always* choose the play materials for their classrooms and that 80.8% of the time they choose/bought materials according to the centre's budget. Remarkably, educators reported that *very often* or *always* the play materials for their classroom were selected according to: children's needs (based on observations) (81.5%); needs of each classroom (77.6%); and, the needs of the children in each classroom (73.4%). One important finding is that educators stated that they use their own personal knowledge 88% of the time to select play materials which leads us to findings about their knowledge of appropriate play materials.

Knowledge (K). The total score for their knowledge of developmental milestones (KDM) and knowledge of appropriate play materials (KPM) was computed by summing the 16 scores (i.e., scored as 1 if correct, 0 if incorrect) for each item for a maximum of 16. The knowledge (K) was computed by summing the score of KDM and KPM for a possible total score of 32. Knowledge, knowledge of developmental milestones, and knowledge of appropriate play materials were also calculated by age group and by domain. Educators scored on average 12.96 (40.5%) out of a possible 32 for their aggregated knowledge. More specifically, they scored on average 7.05 out of 16 (44.06%) for KDM and 5.91 out of 16 (36.94%) for KPM. See Table 3 for means, standard deviations, and ranges.

Table 3

Means, Standard Deviations, and Ranges of Knowledge Variables (n= 308)

	<i>M</i>	<i>SD</i>	<i>Range</i>
Knowledge of Developmental Milestones (KDM)	7.05	2.038	2-12
Knowledge of Appropriate Play Materials (KPM)	5.91	2.149	0-12
Knowledge (K)	12.96	3.135	4-23
KDM 12-24months	2.05	.967	0-4
KDM 24-36months	1.62	.928	0-4
KDM 36-48months	1.53	.874	0-4
KDM 48-60months	1.85	1.118	0-4
KPM 12-24months	1.35	.976	0-4
KPM 24-36months	.84	.782	0-3
KPM 36-48months	1.44	.981	0-4
KPM 48-60months	2.28	.873	0-4
KDM Cognitive	1.67	.978	0-4
KDM Physical	1.94	.965	0-4
KDM Language	2.15	.903	0-4
KDM Social	1.29	.837	0-4
KPM Cognitive	1.76	1.033	0-4
KPM Physical	1.54	.763	0-4
KPM Language	1.19	.893	0-4
KPM Social	1.42	.825	0-4
K 12-24months	3.41	1.412	0-7
K 24-36months	2.46	1.274	0-7
K 36-48months	2.97	1.323	0-6
K 48-60months	4.13	1.471	0-7
K Cognitive	3.44	1.559	0-8
K Physical	3.48	1.293	0-8
K Language	3.33	1.354	0-7
K Social	2.71	1.205	0-7

Note. KDM = Knowledge of Developmental Milestones, KPM= Knowledge of Appropriate Play Materials, K= Knowledge. The maximum score possible for KDM and KPM is 16, and for K is 32. The maximum score possible for KDM and KPM per age group or domain is 4 and K age group or domain is 8.

Developmentally appropriate practice (DAP). The total score for the Beliefs of DAP (BDAP) and Practices of DAP (PDAP) was computed by summing the 30 scores (i.e., on a scale of 1-5) for each item for a maximum total of 150 for each BDAP and PDAP. The developmentally appropriate practice (DAP) score was computed by summing the BDAP and PDAP for a possible total of 300. Specifically, educators received a score of

223.30 out of 300 for their DAP which translates into a score of 74.42% and in more detail, 116.84 for their BDAP (77.9%) and 106.45 out of 150 (71%) for their PDAP. See Table 4 for means, standard deviations, and ranges.

Table 4

Means, Standard Deviations, and Ranges of DAP Variables (n= 308)

	<i>M</i>	<i>SD</i>	<i>Range</i>
BDAP	116.84	10.507	89-145
PDAP	106.45	9.707	79-136
DAP	223.30	18.020	176-281

Note. DAP= Developmentally Appropriate Practice, BDAP= Beliefs of DAP, PDAP= Practices of DAP. The maximum score possible for BDAP and PDAP is 150 and for DAP is 300.

Preliminary Statistical Analyses

Preliminary analyses were conducted on the data by organizing them and conducting one way analyses of variance (ANOVA) by language, years of experience, years of experience before ECE degree, type of degree, and type of child care with KDM, KPM, BDAP and PDAP. Prior to conducting analysis of variances (ANOVA), the homogeneity of slopes assumptions were evaluated, which were supported and deemed appropriate to proceed with the analyses.

Language. Even though the sample population of participants who completed the survey in French ($N = 284$) and English ($N = 24$) are not equal they are representative of the percentage of Francophones and Anglophones in the province of Quebec. Therefore, the language in which the survey was completed, which is assumed to be each participant's preferred language, was used to do preliminary analyses. One way ANOVAs were conducted on educators' developmentally appropriate practice and/or their knowledge and showed that the effect of *language* was significant on BDAP $F(1,306) = 20.85, p = .000$, PDAP $F(1,306) = 24.80, p = .000$, DAP $F(1,306) = 29.80, p = .000$, where Anglophones seem to score higher, and on KPM $F(1,306) = 4.25, p = .040$, K $F(1,306) = 6.40, p = .012$, where Francophones seemed to score higher. Results of these analyses can be found in Table 5. Post-Hoc tests could not be performed since there are less than three groups.

Table 5

Mean Difference of DAP and Knowledge by Language

		N	M	SD	F	p
BDAP	French	284	116.07	10.284	20.85	.000**
	English	24	125.96	8.849		
PDAP	French	284	105.68	9.217	24.80	.000**
	English	24	115.58	10.870		
DAP	French	284	221.76	17.145	29.11	.000**
	English	24	241.54	18.465		
KDM	French	284	7.11	2.019	2.88	.090
	English	24	6.38	2.183		
KPM	French	284	5.98	2.100	4.25	.040*
	English	24	5.04	2.562		
K	French	284	13.09	3.034	6.40	.012*
	English	24	11.42	3.900		

Note: * $p < .05$. ** $p < .01$. KDM = Knowledge of Developmental Milestones; KPM= Knowledge of Appropriate Play Materials; K= Knowledge (KDM + KPM); BDAP= Beliefs of developmentally appropriate practice; PDAP= Practice of developmentally appropriate practice; DAP= Developmentally Appropriate Practice (BDAP + PDAP).

Years of experience. In order to determine whether years of experience played a role on educators' developmentally appropriate practice and/or their knowledge, one way ANOVAs were conducted and showed that the effect of *years of experience* was significant on BDAP $F(7,300) = 2.44$, $p = .019$, PDAP $F(7,300) = 2.20$, $p = .034$, and DAP $F(7,300) = 2.61$, $p = .012$. Results of these analyses can be found in Table 6.

Bonferroni Post-Hoc analysis revealed no statistically significant differences but a slight trend was found where educators with 11-15years ($M = 229.74$, 95% CI [23.27 - .47]), $p = .075$, had higher DAP than educators with 1-3years experience.

Table 6

Mean Difference of DAP and Knowledge by Years of Experience

		N	M	SD	F	p
BDAP	1-3 years	60	115.02	9.795	2.44	.019*
	4-7 years	107	115.73	10.729		
	8-10 years	56	115.52	10.941		
	11-15 years	35	120.80	9.225		
	16-20 years	20	117.80	9.929		
	21-25 years	13	119.69	9.920		
	+ 25 years	7	124.71	2.690		
PDAP	1-3 years	60	103.33	10.643	2.20	.034*
	4-7 years	107	106.08	10.156		
	8-10 years	56	106.32	7.709		
	11-15 years	35	108.94	8.537		
	16-20 years	20	108.15	8.641		
	21-25 years	13	112.31	9.304		
	+ 25 years	7	109.57	5.769		
DAP	1-3 years	60	218.35	18.294	2.61	.012*
	4-7 years	107	221.81	18.552		
	8-10 years	56	221.84	15.847		
	11-15 years	35	229.74	15.999		
	16-20 years	20	225.95	17.252		
	21-25 years	13	232.00	17.474		
	+ 25 years	7	234.29	5.090		
KDM	1-3 years	60	7.45	1.799	.625	.735
	4-7 years	107	6.88	2.226		
	8-10 years	56	7.09	2.030		
	11-15 years	35	6.83	1.917		
	16-20 years	20	7.15	2.277		
	21-25 years	13	6.69	1.974		
	+ 25 years	7	7.57	2.070		
KPM	1-3 years	60	6.10	2.275	.872	.529
	4-7 years	107	6.11	2.242		
	8-10 years	56	5.84	1.714		
	11-15 years	35	5.69	2.207		
	16-20 years	20	5.30	2.003		
	21-25 years	13	6.15	1.573		
	+ 25 years	7	4.86	3.237		

K	1-3 years	60	13.55	3.072	.572	.779
	4-7 years	107	12.99	3.509		
	8-10 years	56	12.93	2.808		
	11-15 years	35	12.51	2.790		
	16-20 years	20	12.45	2.605		
	21-25 years	13	12.85	2.193		
	+ 25 years	7	12.43	4.541		

Note: * $p < .05$. ** $p < .01$.

KDM = Knowledge of Developmental Milestones; KPM= Knowledge of Appropriate Play Materials; K= Knowledge (KDM + KPM); BDAP= Beliefs of developmentally appropriate practice; PDAP= Practice of developmentally appropriate practice; DAP= Developmentally Appropriate Practice (BDAP + PDAP).

Years of experience before ECE training. One way ANOVAs were conducted to establish if there was a difference in the DAP and/or knowledge of educators according to the number of years of experience they possessed before completing their ECE training. The ANOVAs showed that the effect of *years of experience before ECE degree* was significant on KPM $F(5,302) = 2.96$, $p = .013$ and K $F(5,302) = 3.18$, $p = .008$. Results of these analyses can be found in Table 7. Bonferroni post-hoc analysis revealed that educators with *No experience* prior to completing their training in ECE ($M = 6.44$, 95% CI [.18- 2.30]), $p = .009$, had higher KPM and higher K ($M = 13.64$, 95% CI [.44 – 3.52]), $p = .003$, than educators with + 10 years of prior experience.

Table 7

Mean Difference of DAP and Knowledge by Years of Experience before ECE Training

		N	M	SD	F	p
BDAP	No experience	116	117.23	10.588	.29	.916
	1-2 years	49	115.65	11.317		
	3-5 years	44	116.93	10.568		
	6-10 years	34	115.88	10.174		
	+ 10 years	50	117.78	10.469		
PDAP	No experience	116	106.62	9.644	.97	.436
	1-2 years	49	105.53	9.794		
	3-5 years	44	106.45	11.629		
	6-10 years	34	105.29	7.309		
	+ 10 years	50	108.64	9.376		
DAP	No experience	116	223.85	18.021	.64	.666
	1-2 years	49	221.18	18.880		
	3-5 years	44	223.39	20.059		
	6-10 years	34	221.18	16.277		
	+ 10 years	50	226.42	17.168		
KDM	No experience	116	7.20	1.885	1.34	.249
	1-2 years	49	7.33	2.249		
	3-5 years	44	7.00	1.965		
	6-10 years	34	7.26	2.108		
	+ 10 years	50	6.46	2.243		
	N/A	15	5.47	1.457		
KPM	No experience	116	6.44	2.095	2.96	.013*
	1-2 years	49	5.59	2.101		
	3-5 years	44	5.80	2.397		
	6-10 years	34	5.91	1.730		
	+ 10 years	50	5.20	2.304		
	N/A	15	12.13	2.386		
K	No experience	116	13.64	3.031	3.18	.008**
	1-2 years	49	12.92	3.475		
	3-5 years	44	12.80	3.393		
	6-10 years	34	13.18	2.865		
	+ 10 years	50	11.66	2.797		

Note: * $p < .05$. ** $p < .01$.

Type of training. In order to determine if the type of training the educators possessed had an impact on their DAP and/or knowledge, one way ANOVAs were conducted and showed that the effect of *type of training* was significant on BDAP $F(9,298) = 4.26, p = .000$ and DAP $F(9,298) = 3.40, p = .001$. Results of these analyses can be found in Table 8. Bonferroni post-hoc analysis revealed that educators with *B4* training had significantly stronger BDAP ($M = 132.25$) than educators with *N* ($M = 113.22, 95\% \text{ CI } [6.44 - 31.62], p = .000$, *DCS1* ($M = 115.03, 95\% \text{ CI } [4.76 - 29.67], p = .000$, *DCS2* ($M = 119.59, 95\% \text{ CI } [1.05 - 25.26], p = .048$, *DCS3* ($M = 115.40, 95\% \text{ CI } [1.17 - 32.53], p = .021$ and *UC1* ($M = 116.09, 95\% \text{ CI } [2.51 - 29.81], p = .005$.

In addition, this variable was also combined to form composite variables; Attestation, Diploma and Bachelor degrees. No significant differences were found between educators' who possessed a recognized Attestations or Diploma.

Significant differences were revealed between DAP, BDAP, and PDAP according to the type of recognized training. Educators who possessed a recognized Bachelor degrees were found to have stronger BDAP ($t(138) = -2.02, p < .05$), PDAP ($t(138) = -2.43, p < .05$), DAP ($t(138) = -2.47, p < .05$) than educators with a recognized Attestations. Educators a recognized Bachelor degrees were found to have stronger BDAP ($t(138) = -2.04, p < .05$), PDAP ($t(138) = -1.91, p < .05$), DAP ($t(138) = -2.23, p < .05$) than educators with Diploma in ECE.

Table 8

Mean Difference of DAP and Knowledge by Type of Training

		N	M	SD	F	p
BDAP	N	50	113.22	10.742	4.26	.000**
	DCS1	59	115.03	9.757		
	DCS2	49	119.59	9.991		
	DCS 3	10	115.40	7.397		
	DCS4	0	0	0		
	DCS 5	89	116.67	10.451		
	B1	6	114.83	10.068		
	B2	10	120.40	9.228		
	B3	5	127.40	5.177		
	B4	8	132.25	10.727		
	UC1	22	116.09	9.185		
PDAP	N	50	104.40	9.697	1.87	.056
	DCS1	59	106.90	8.662		
	DCS2	49	106.78	11.838		
	DCS 3	10	102.70	5.716		
	DCS4	0	0	0		
	DCS 5	89	105.71	8.805		
	B1	6	103.17	14.580		
	B2	10	108.60	9.264		
	B3	5	115.40	5.941		
	B4	8	114.13	13.726		
	UC1	22	109.05	7.816		
DAP	N	50	217.62	18.331	3.39	.001**
	DCS1	59	221.93	16.135		
	DCS2	49	226.37	19.355		
	DCS 3	10	218.10	11.426		
	DCS4	0	0	0		
	DCS 5	89	222.38	17.241		
	B1	6	218.00	24.519		
	B2	10	229.00	14.314		
	B3	5	242.80	9.094		
	B4	8	246.38	23.664		
	UC1	22	225.14	14.568		

KDM	N	50	6.58	1.885	.658	.747
	DCS1	59	7.20	1.972		
	DCS2	49	7.33	1.962		
	DCS 3	10	7.30	2.263		
	DCS4	0				
	DCS 5	89	7.07	2.305		
	B1	6	7.67	1.862		
	B2	10	7.10	1.663		
	B3	5	6.80	1.924		
	B4	8	7.50	1.512		
	UC1	22	6.64	1.941		
KPM	N	50	5.62	2.203	1.49	.148
	DCS1	59	6.31	2.028		
	DCS2	49	6.20	2.160		
	DCS 3	10	4.00	2.625		
	DCS4	0				
	DCS 5	89	5.78	2.152		
	B1	6	6.00	2.000		
	B2	10	5.70	2.214		
	B3	5	6.60	1.342		
	B4	8	6.50	2.204		
	UC1	22	5.91	1.974		
K	N	50	12.20	2.914	1.23	.276
	DCS1	59	13.51	2.337		
	DCS2	49	13.53	3.286		
	DCS 3	10	11.30	4.373		
	DCS4	0				
	DCS 5	89	12.84	3.500		
	B1	6	13.67	2.503		
	B2	10	12.80	3.225		
	B3	5	13.40	1.140		
	B4	8	14.00	3.207		
	UC1	22	12.55	3.128		

Note: N= None, DCS1= Diploma of College Studies in education in child care service, DCS2= Diploma of College Studies in early childhood education, DCS 3= Diploma of College Studies in daycare, DCS4= Diploma of College Studies in family practice, DCS 5= Attestation of college studies in education in child care services OR early childhood education OR daycare OR family practice + 3 years of relevant experience, B1= Bachelor's Degree in preschool education, B2= Bachelor's Degree in preschool and elementary education OR early childhood and elementary education, B3= Bachelor's Degree in psychology with a focus in child development OR Child Study, B4= Bachelor's Degree in psychology, psychoeducation, orthopedagogy, adapted childhood OR special education, UC1= University Certificate in early childhood education + 3 years of relevant experience. * $p < .05$. ** $p < .01$.

Type of child care. Lastly, one way ANOVAs were done to verify if there were any significant differences between educators' DAP and K according to their type of child care. The findings showed that the effect of *type of child care* was strongly significant on BDAP $F(6, 301) = 2.24, p = .040$, PDAP $F(6, 301) = 3.74, p = .001$, DAP $F(6, 301) = 3.28, p = .004$, and a significant difference for KDM $F(6, 301) = 2.18, p = .044$, and K $F(6, 301) = 3.15, p = .005$. Results of these analyses can be found in Table 9.

Bonferroni post-hoc analysis revealed that educators in *D* types of child care had significantly weaker K ($M = 8.25$) than educators in *CPE7* ($M = 13.18, 95\% \text{ CI } [-9.68 - -.18]$), $p = .034$, *D7* ($M = 13.65, 95\% \text{ CI } [10.55 - -.25]$), $p = .031$, *H* ($M = 15.20, 95\% \text{ CI } [-13.26 - -.64]$), $p = .018$

Table 9

Mean difference of Developmentally Appropriate Practice by Type of Child Care

		N	M	SD	F	p
BDAP	CPE7	207	117.46	10.411	2.24	.040*
	D7	20	119.60	8.306		
	H7	55	113.24	10.216		
	CPE	8	118.38	9.164		
	D	4	114.75	13.200		
	H	5	110.00	10.173		
	O	9	121.89	14.348		
PDAP	CPE7	207	107.43	9.205	3.74	.001**
	D7	20	104.30	12.101		
	H7	55	103.62	8.236		
	CPE	8	105.75	13.036		
	D	4	104.75	7.632		
	H	5	94.40	10.621		
	O	9	114.11	12.293		
DAP	CPE7	207	224.90	17.314	3.28	.004**
	D7	20	223.90	18.390		
	H7	55	216.85	16.244		
	CPE	8	224.13	19.526		
	D	4	219.50	19.891		
	H	5	204.40	20.623		
	O	9	236.00	26.420		
KDM	CPE7	207	7.15	1.960	2.18	.044*
	D7	20	7.70	2.105		
	H7	55	6.58	2.158		
	CPE	8	7.25	2.315		
	D	4	4.50	1.732		
	H	5	7.80	3.033		
	O	9	6.67	1.225		
KPM	CPE7	207	6.03	2.145	1.54	.166
	D7	20	5.95	2.395		
	H7	55	5.53	1.942		
	CPE	8	5.75	3.012		
	D	4	3.75	2.062		
	H	5	7.40	1.817		
	O	9	5.56	1.810		

K	CPE7	207	13.18	3.046	3.15	.005**
	D7	20	13.65	3.167		
	H7	55	12.11	3.083		
	CPE	8	13.00	3.928		
	D	4	8.25	3.403		
	H	5	15.20	2.387		
	O	9	12.22	2.682		

Note: * $p < .05$. ** $p < .01$.

CPE7= Centre de la petite enfance in facilities (CPE) – Reduced contribution, D7= Daycare in facilities- Reduced contribution, H7= Home child care coordinated by the coordinator's office OR associated with a CPE – Reduced contribution, CPE= Centre de la petite enfance in facilities (CPE), D= Daycare in facilities, H= Home child care coordinated by the coordinator's office OR associated with a CPE, O= Other.

KDM = Knowledge of Developmental Milestones; KPM= Knowledge of Appropriate Play Materials; K= Knowledge (KDM + KPM); BDAP= Beliefs of developmentally appropriate practice; PDAP= Practice of developmentally appropriate practice; DAP= Developmentally Appropriate Practice (BDAP + PDAP).

Relationships between Developmentally Appropriate Beliefs and Practices

Correlation tests were conducted between the subsets of DAP $r(306) = .589, p = .000$ (i.e., BDAP & PDAP) and K ($r(306) = .120, p = .035$) (i.e., KDM & KPM). Results of these analyses can be found in Table 10 and 11.

Table 10

Pearson Correlations Between BDAP, and PDAP

	BDAP	PDAP
BDAP		.589**

* $p < .05$. ** $p < .01$. BDAP= Beliefs of developmentally appropriate practice; PDAP= Practice of developmentally appropriate practice; DAP= Developmentally Appropriate Practice (BDAP + PDAP).

Table 11

Pearson Correlations Between KDM and KPM

	KPM	KDM
KPM		.120*

* $p < .05$. ** $p < .01$. KDM = Knowledge of Developmental Milestones; KPM= Knowledge of Appropriate Play Materials; K= Knowledge (KDM + KPM)

Statistical Analysis of Research Questions

This section will include the quantitative analyses and the results for each of the three research questions. The research questions required correlation analysis therefore *Pearson* correlations were conducted to answer each research question. Bivariate scatterplots for each combination of variables were screened for linearity. Although not perfect, all relationships appeared linear, with somewhat oval or elliptical shapes, depicting enough linearity in the relationships to proceed with analyses.

Question 1: What is the relationship between educators' knowledge of developmental milestones (KDM) and the knowledge of appropriate play materials (KPM)?

Pearson correlations were used to determine the relations between educators' knowledge of developmental milestones (KDM) and their knowledge of appropriate play materials (KPM). The findings showed that KDM was positively correlated with KPM, $r(306) = .120, p = .035$ which means that the alternate hypothesis; educators' knowledge of developmental milestones (KDM) is related to their knowledge of appropriate play materials (KPM), was accepted and the null hypothesis was rejected.

In an attempt to examine this relation in more detail, correlation tests were conducted for both variables; KDM and KPM according to age group (i.e., 12-24 months old, 24-36 months old, 36-48 months old, and 48-60 months old) as well as according to developmental domain (i.e., cognitive, physical, language, and social). Correlation tests were conducted between KDM and KPM and each age group and each domain of development. Associations are presented in Table 12.

Table 12

Pearson Correlation Matrix among KDM and KPM by Age Group and Domain

	KDM	KPM	KDM C	KDM P	KDM L	KDM S	KPM C	KPM P	KPM L	KPM S
KDM	1									
KPM		1								
KDM 12	.299**	-.009	.214**	.122*	.167**	.158**	.035	.006	-.053	-.015
KDM 24	.613**	.026	.257**	.315**	.369**	.431**	-.040	.035	.059	.021
KDM 36	.582**	.060	.342**	.402**	.351**	.176**	.018	.074	.030	.033
KDM 48	.600**	.158**	.401**	.330**	.209**	.385**	.166**	.096	.061	.048
KPM 12	.115*	.668**	.149**	.035	.078	-.018	.419**	.370**	.484**	.349**
KPM 24	.134*	.353**	.096	.044	.061	.097	.267**	.174**	.198**	.212**
KPM 36	.057	.710**	.020	.032	.064	.009	.452**	.523**	.411**	.354**
KPM 48	-.017	.601**	.039	.011	-.027	-.071	.478**	.386**	.225**	.366**

Note: * $p < .05$. ** $p < .01$. KDM 12 = KDM for 12-24months, KDM 24 = KDM for 24-36months, KDM 36 = KDM for 36-48months, KDM 48 = KDM for 48-60months, KDM C = KDM for cognitive development, KDM P = KDM for physical development, KDM L = KDM for language development, KDM S = KDM for social development. KPM = Knowledge of Appropriate Play Materials, KPM12 = KPM for 12-24months, KPM24 = KPM for 24-36months, KPM 36 = KPM for 36-48months, KPM48 = KPM for 48-60months, KPMC = KPM for Cognitive development, KPMP = KPM for physical development, KPML = KPM for language development, KPMS = KPM for social development.

Knowledge of developmental milestones and knowledge of appropriate play materials-**Domains**

Pearson correlations were performed to determine relationships between KDM and KPM according to specific domains of development. A positive correlation was found between KDM for cognitive development and KPM for cognitive development ($r(306) = .200, p = .000$). Also, KDM for language development was positively correlated with KPM for physical development $r(306) = .151, p = .008$ and $r(306) = .135, p = .01$. Finally, knowledge of developmental milestones for cognitive development was found to be positively correlated with knowledge of developmental milestones for social development $r(306) = .211, p = .000$. See Table 13 for correlations between KDM and KPM by domain.

Table 13

Pearson Correlation Matrix among KDM and KPM by Domain

	KDM C	KDM P	KDM L	KDM S	KPM C	KPM P	KPM L	KPM S
KDM	.585**	.554**	.513**	.558**	.097	.104	.048	.043
KPM	.128*	.051	.076	.002	.688**	.627**	.571**	.546**
KDMC		.060	-.023	.211**	.200**	.031	-.048	.106
KDMP			.099	.020	.033	.107	-.014	.009
KDML				.082	-.012	.151**	.135*	-.074
KDMS					-.022	-.070	.045	.051
KPM C						.323**	.105	.128*
KPM P							.157**	.134*
KPM L								.127*

Note: * $p < .05$. ** $p < .01$. KDM 12 = KDM for 12-24months, KDM 24 = KDM for 24-36months, KDM 36 = KDM for 36-48months, KDM 48 = KDM for 48-60months, KDM C = KDM for cognitive development, KDM P = KDM for physical development, KDM L = KDM for language development, KDM S = KDM for social development. KPM = Knowledge of Appropriate Play Materials, KPM12 = KPM for 12-24months, KPM24 = KPM for 24-36months, KPM 36 = KPM for 36-48months, KPM48 = KPM for 48-60months, KPMC = KPM for Cognitive development, KPMP = KPM for physical development, KPML = KPM for language development, KPMS = KPM for social development.

Knowledge of developmental milestones and knowledge of appropriate play materials- Age Groups

Following the analyses by domain, *Pearson* correlations were conducted between KDM and KPM according to each of the age groups. Interestingly, it was found that educators' KDM for the youngest age group (i.e., 12-24 months) was negatively correlated $r(306) = -.187, p = .001$ and $r(306) = -.240, p = .000$ with their knowledge of developmental milestones for the older age groups (i.e., 36-48 months and 48-60 months). Also, KDM for 24-36 months old was found to be positively correlated with KDM for 36-48 months old ($r(306) = .174, p = .002$). Knowledge of developmental milestones (KDM) for 36-48 months old, $r(306) = .297, p = .000$ was positively correlated with KDM for 48-60 months old and KDM for 48-60 months old was positively correlated with KPM for 12-24 months old ($r(306) = .124, p = .029$) and 24-36 months old ($r(306) = .117, p = .040$).

Associations are presented in Table 14.

Table 14

Pearson Correlation Matrix among KDM and KPM by Age Groups

	KDM 12	KDM 24	KDM 36	KDM 48	KPM 12	KPM 24	KPM 36	KPM 48
KDM	.299**	.613**	.582**	.600**	.115*	.134*	.057	-.017
KPM	-.009	.026	.060	.158**	.668**	.353**	.710**	.601**
KDM 12		.080	-.187**	-.240**	.056	-.040	.028	-.079
KDM 24			.174**	.082	.019	.103	.010	-.062
KDM 36				.297**	.027	.098	.014	.014
KDM 48					.124*	.117*	.061	.077
KPM 12						-.061	.315**	.228**
KPM 24							.058	-.024
KPM 36								.219**

Note: * $p < .05$. ** $p < .01$. KDM 12 = KDM for 12-24months, KDM 24 = KDM for 24-36months, KDM 36 = KDM for 36-48months, KDM 48 = KDM for 48-60months, KDM C = KDM for cognitive development, KDM P = KDM for physical development, KDM L = KDM for language development, KDM S = KDM for social development. KPM = Knowledge of Appropriate Play Materials, KPM12 = KPM for 12-24months, KPM24 = KPM for 24-36months, KPM 36 = KPM for 36-48months, KPM48 = KPM for 48-60months, KPMC = KPM for Cognitive development, KPMP = KPM for physical development, KPML = KPM for language development, KPMS = KPM for social development.

Question 2: What is the relationship between educators' knowledge of developmental milestones (KDM) and their beliefs and/or practices of developmentally appropriate practice (DAP)?

Pearson correlation tests were conducted to determine the relationship between educators' knowledge of developmental milestones (KDM) and their beliefs (BDAP) and/or practices (PDAP) of developmentally appropriate practice. The results showed that there were no significant correlations between educators' KDM and their BDAP and PDAP which means that alternate hypothesis; educators' knowledge of developmental milestones (KDM) is related to their developmentally appropriate beliefs and practice (DAP) was rejected and the null hypothesis was accepted. Pearson correlations are presented in Table 12. Further investigation using scatter plot and box plot graphs determined 10 outliers (i.e., standardized residual cases greater than 3 standard deviations above or below the mean; (Meyers, Gamst, & Guarino, 2006). No significant correlations were found between KDM and DAP even when outliers were taken into consideration. Therefore normality was not

assumed completely for KDM data. See Table 15 for correlations between DAP and KDM.

Table 15

Pearson Correlations Between DAP and KDM

	KDM	KDM12	KDM24	KDM36	KDM48	KDMC	KDMP	KDML	KDMS
BDAP	.058	.082	.002	-.004	.035	.088	.089	-.018	-.047
PDAP	-.027	.069	-.031	-.058	-.037	.035	.044	-.082	-.069
DAP	.019	.085	-.015	-.033	.000	.070	.076	-.054	-.064

Note: Correlation scores (r). * $p < .05$. ** $p < .01$. DAP= Developmentally Appropriate Practice, BDAP= Beliefs of DAP, PDAP= Practices of DAP, KDM = Knowledge of developmental milestones, KDM 12 = KDM for 12-24months, KDM 24 = KDM for 24-36months, KDM 36= KDM for 36-48months, KDM 48= KDM for 48-60months, KDM C= KDM for cognitive development, KDM P = KDM for physical development, KDM L= KDM for language development, KDM S= KDM for social development.

Question 3: What is the relationship between educators' knowledge of appropriate play materials (KPM) and their beliefs and/or practices of developmentally appropriate practice (DAP)?

Pearson correlations were conducted to uncover any relationships between educators' KPM and their DAP (i.e., BDAP and/or PDAP). The findings revealed that KPM was positively correlated with BDAP($r(306) = .131, p = .022$) which means that the alternate hypothesis; educators' knowledge of appropriate play materials (KPM) is related to their developmentally appropriate beliefs and practice was accepted and the null hypothesis was rejected.

Subsequently the KPM was divided by age group as well as by domain of development. Hence more specific findings were exposed. A strong positive correlation was revealed between educators' DAP and their KPM related to cognitive milestones (KPMC) ($r(306) = .184, p = .001$).

More specifically, educators' BDAP was found to be positively correlated with KPM related to 24-36 month olds' milestones (KPM24) $r(306) = .126, p = .026$ and KPM

strongly related to cognitive milestones (KPMC) $r(306) = .195, p = .001$. Lastly, it was found that educators' PDAP was positively correlated with KPM related to cognitive milestones (KPMC) $r(306) = .130, p = .022$. Correlations are displayed in Table 16.

Table 16

Pearson Correlations Between DAP and KPM

	KPM	KPM12	KPM24	KPM36	KPM48	KPMC	KPMP	KPML	KPMS
BDAP	.131*	.050	.126*	.087	.055	.195**	.102	-.043	.049
PDAP	.047	.008	.060	.040	.008	.130*	.027	-.088	.030
DAP	.102	.033	.106	.073	.036	.184**	.074	-.073	.045

Note: Correlation scores (r). * $p < .05$. ** $p < .01$. DAP= Developmentally Appropriate Practice, BDAP= Beliefs of DAP, PDAP= Practices of DAP, KPM = Knowledge of Appropriate Play Materials, KPM12= KPM for 12-24months, KPM24= KPM for 24-36months, KPM 36 = KPM for 36-48months, KPM48= KPM for 48-60months, KPMC = KPM for Cognitive development, KPMP = KPM for physical development, KPML= KPM for language development, KPMS= KPM for social development.

Chapter Conclusion

This chapter included the descriptive statistics and the statistical analyses of the data to address the study's three research questions. The descriptive statistics revealed that early childhood educators who participated in this study from Quebec scored low on their declarative knowledge of developmental milestones (KDM) and appropriate play materials (KPM) but scored high on developmentally appropriate beliefs and practice (BDAP and PDAP). Educators' level of KDM was found to be positively correlated with educators' level of KPM and their KPM was positively correlated with their BDAP and KPM related to cognitive with PDAP. The next chapter will discuss these statistical findings in context.

Chapter V

Discussion

This chapter will discuss the results presented in the previous section in relation to research questions and contemporary research relevant to early childhood education and care.

The purpose of this study was to explore the relationships between early childhood educators' declarative knowledge of developmental milestones (KDM), declarative knowledge of appropriate play materials (KPM) and their beliefs and practices of developmentally appropriate practice (BDAP and PDAP) which were hypothesized to influence the quality of their classrooms. The findings suggest that educators' KDM is associated with their KPM and that their KPM appears to be associated with BDAP but that their KDM is not related to their DAP (i.e., BDAP or PDAP). The results also indicate some patterns related to educators' knowledge and developmentally appropriate practice which could add to the growing body of literature on elements that may potentially influence the quality of early childhood settings.

A surge of research has occurred in the past decade in Canada pertaining to the quality of early childhood education and care and childrens' outcomes (Doherty et al., 2000; Drouin et al., 2004; Goelman et al., 2000; 2006; Japel et al., 2005). As the general population begins to better understand the importance of the early years and the numerous benefits of investing in early childhood education, the need to identify and examine elements that impact the quality of early childhood education and care (ECEC) has become increasingly important.

High quality ECEC has consistently been related to positive child behaviour and childrens' social and cognitive outcomes in both short and long term (Belsky, 2006;

Burchinal et al., 2000; Cleveland & Krashinsky, 1998; Japel et al., 2005; McCain et al., 2007; Montie et al., 2006; NICHD, 2002-2010; Peisner-Feinberg et al., 2001; Reynolds et al., 2007). A key factor identified by past research as influencing the quality of ECEC classrooms are the characteristics of the early childhood educators themselves. Educators' education/qualifications, areas of specialization, knowledge, beliefs and practice (e.g., developmentally appropriate practice) have been strongly associated to the quality of their classrooms and the programs within their centers (Belsky, 2006; Bigras et al., 2010; Charlesworth et al. 1991; 1993; Daniels & Shumow, 2003; Doherty & Stuart, 1996; Drouin et al., 2004; Friendly & Prentice, 2009; Goelman et al., 2006; Kim, 2005; Layzer & Goodson, 2006; McMullen & Alat, 2002; OECD, 2004; Saracho & Spodeck, 2006; 2007).

Past research in Quebec revealed that centres across the province received, on average, *mediocre to minimal* quality scores and that ECEC classrooms lacked developmentally appropriate play materials (Drouin et al., 2004; Japel et al., 2005). A number of studies investigated the associations between educators' education or training, DAP and ECEC quality. However, when a search was conducted, no empirical studies were found that examined the association between early childhood educators' specific knowledge of developmental milestones and appropriate play materials and their developmentally appropriate practice. Since some inconsistencies exist between educators' level of education, specialization and quality, this study focused on level of declarative knowledge to try to offset this occurrence (Early et al., 2007). Based on past research, it was hypothesized that these variables may influence the decision making surrounding the selection of play materials and overall classroom quality. Therefore, the current study was undertaken to fill the present gap based on the importance of early childhood educators'

KDM, KPM, and DAP as a potential way to increase the quality of early childhood classrooms.

The main topic was the relationship between early childhood educators' KDM, KPM and BDAP and PDAP. Several possible intervening variables (e.g., language, years of experience, and years of experience before ECE program) were considered in this study.

The following research questions were addressed and hypotheses were tested: (1) What is the relationship between educators' knowledge of developmental milestones (KDM) and the knowledge of appropriate play materials (KPM)? (2) What is the relationship between educators' knowledge of developmental milestones (KDM) and their beliefs and/or practices of developmentally appropriate practice (DAP) ? (3) What is the relationship between educators' knowledge of appropriate play materials (KPM) and their beliefs and/or practices of developmentally appropriate practice (DAP)?

Knowledge: Developmental milestones and appropriate play materials

Best practices in early childhood education are "... based on knowledge—not on assumptions—of how children learn and develop" (NAEYC, 2009, p. 1). Based on this important statement, educators' knowledge about children's developmental milestones and appropriate play materials was assessed using a test like measurement tool.

At this point in the discussion, it is important to mention one major limitation of this study which must be considered whilst reflecting upon the present results. The section of the measurement instrument pertaining to the KDM and KPM required the participating educators to match the developmental milestone to the appropriate age group (KDM) and appropriate play material (KPM). Therefore this questionnaire could only assess the educators' *declarative* knowledge about developmental milestones and appropriate play

materials and did not measure the *procedural* knowledge of appropriate developmental milestones and appropriate play materials (Anderson, 1980; Scardamalia & Bereiter, 2006).

The findings indicate that participating educators achieved a very low score (40.5%) on the knowledge (K) section of the questionnaire (i.e., KDM + KPM) (see Table 3). Moreover, the scores were examined individually and it was revealed that the educators scored slightly lower on their KPM (36.94%) versus their KDM (44.06%).

According to these results, the participating educators seemed to demonstrate weak declarative KDM related to each age group as well as weak declarative KPM indicating a lack of awareness of which materials are appropriate to stimulate specific skills/milestones for specific age groups and across all four developmental domains. In particular, participating educators demonstrated weaker declarative KPM for each age group and developmental milestone in comparison to their KDM. One explanation could be that they did not integrate their declarative KDM into their decisions about which play materials were appropriate. This could signal a weakness in terms of the educators' procedural knowledge related to selection of play materials. Moreover, there seemed to be a disconnect between the participating educators' perceptions of their own knowledge, their knowledge of appropriate play materials and what is available in their classroom and their declarative knowledge as assessed by this questionnaire.

These revelations are cause for concern since according to previous research early childhood educators' practice should be based on a strong understanding of children's development and ECE (Burchinal et al., 2002; Drouin et al., 2004; Fukkink & Lont, 2007; Goelman et al., 2000; Goelman et al., 2006; Saracho & Spodeck, 2007; Whitebook, 2003a; 2003b; Whitebook et al., 2009). This is supported by the increase in qualifications to become an ECE in most Canadian provinces, the number of qualified ECEs in each

centre/classroom (e.g., 2/3 qualified in Quebec) and requirement to be “registered” as an ECE (e.g., must be registered with the College of ECE in Ontario).

As Zambo stated “While being a skilled child care worker demands practical knowledge it also demands knowledge about child development and child psychology that comes from science” (Zambo, 2008, p. 575). The examination of ECEs level of declarative knowledge logically leads to a discussion about the relationship between knowledge and expertise such as the impact of the ECE specialization or their level of education since training is considered to be a key indicator of knowledge for most educators in the province of Quebec. Regrettably, according to the present results, educators in Quebec demonstrated very weak declarative KDM which suggests that educators either do not have the required knowledge or they may have had difficulty stating or remembering what abilities and milestones children attain during each of the first five years of their lives.

Research has revealed that early childhood educators with higher levels of formal education, and thus potentially stronger child development knowledge, have been shown to have higher classroom quality. Educators with a bachelor’s degree and specialized training in ECE or child development typically provide higher quality classrooms and programs to the children. For instance, the Canadian *You Bet I Care!* study, which included centres from Quebec, found strong relations between overall ECERS-R scores and educators’ levels of ECE education. The level of training and the specialization in ECE was considered to have a “direct” effect on the level of quality which suggests that it may be the level of knowledge or information that educators gain from their training that is impacting the quality of their classroom (Burchinal et al., 2002; Daniels & Shumow, 2003; Doherty & Stuart, 1996; Drouin et al., 2004; Fukkink & Lont, 2007; Goelman et al., 2000; 2006; Saracho & Spodek, 2007; Whitebook, 2003b; Whitebook et al., 2009b; Zill et al., 2001).

For this reason, it could be suggested that the low level of declarative knowledge revealed by participating educators may impact the quality of their classrooms in some way and could help explain, to some extent, the *mediocre/minimal* levels of quality found across the province in previous large scale studies.

Past studies illustrated that educators who possessed a Bachelor of Arts degree were more responsive in the classroom, provided more activities that promoted emergent literacy and language, and the children in their classrooms demonstrated better developmental outcomes. Educators with a B.A. degree plus a specialization in child development or ECE were considered better qualified educators (Barnett, 2003; Howes et al., 2003; Whitebook, 2003b; Whitebook et al., 2009).

The findings of the study at the focus of this thesis indicate that the type of training that the educators possessed did not have a significant effect on their level of knowledge (i.e., KDM or KPM) in this particular case (see Table 8). Still, if the study would have gathered more detailed information about the educators' training (i.e., specific courses, length to complete training), more objective conclusions could have been drawn. Some training program may be more successful at helping educators transfer their declarative knowledge into procedural knowledge or practice, for example. Most participants possessed a three-year DCS in ECE or a one-year attestation in ECE (see Table 1). In the province of Quebec, most bachelor degrees (e.g., psychology, child studies, social work) are 3-year degrees except for the Bachelor in Early Childhood and Elementary Education (B.A. in ECEE) which is a 4-year program. However, in other Canadian provinces and in the US, most bachelor degrees are of 4-years duration. Compared to bachelor degrees in child studies or child development, the Quebec college diplomas offer more hands-on,

active learning opportunities in addition to field placement/practicum time in centers, similar to the college level 2-year ECE diplomas in Ontario.

The *Grandir en Qualité* study reported that educators with post-secondary education and educators who were qualified (as recognized by the Government) were associated with higher quality services but interestingly, educators who possessed a 3-year diplomas versus a bachelor degree were found to demonstrate higher quality for two dimensions related to infant care (Drouin et al., 2004). This finding may signify that precise knowledge may be found in specific training program or levels of training.

It is not possible to determine what causes these weak levels of declarative knowledge although some possible explanations could be explored. One possibility is that educators may not have received the proper training related to developmental milestones and appropriate play materials. Although it is most likely due to the participating educators' difficulties remembering the appropriate answers when prompted in a "test" like condition versus in action or in context. However, if this is the case, it would be beneficial for future studies to investigate if educators who demonstrate weak declarative knowledge also demonstrate weak procedural knowledge or observed practice in relation to the same content, or would stronger knowledge be revealed. Professional development for instance could be initiated in these areas since it has been found to stimulate and strengthen residual knowledge.

As previously stated in the literature review, a lack of developmentally appropriate play materials was reported in child care centres in the province of Quebec and this had an effect on the global quality scores which were established at *mediocre/minimal* (Bigras & Cantin, 2007; Drouin et al., 2004; Japel et al., 2005). It was hypothesized that the lack of developmentally appropriate play materials may have been influenced by the participating

educators' knowledge of appropriate play materials and the results of this study are supporting this proposition. The educators demonstrated that they were only able to identify the appropriate play materials for the specific milestones and age groups 36.94% of the time. According to these results, it seems that educators had difficulty stating or remembering which play materials were appropriate for each age group and/or which play materials were appropriate to stimulate/support various milestones across all four domains of development. This section of the questionnaire required more logical thinking or recall of procedural knowledge to select the appropriate materials, though their weak declarative KDM may have negatively impacted their selection and it could be hypothesized that this weakness could contribute to the lack of play materials.

Particularly alarming is the finding that most of the participating educators reported using their own personal knowledge to select play materials, that they very often or always chose play materials based on their observations and according to children's needs, and, that they felt that the play materials in their classroom were developmentally appropriate for the children. While it is understandable that experience working with young children is important and valuable, educators must also draw on accurate and contemporary knowledge to make educated and appropriate decisions, since experience alone is not a predictor of effective care giving and is actually linked to less cognitive and social stimulation (Yeates et al., 2001). One possible explanation for this finding is that list of play materials included in the survey may have influenced the educators' answers.

Participating educators reported that they possessed the necessary knowledge to select appropriate play materials and that they were providing appropriate play materials to the children to optimize their individual developments, but in actual fact, their declarative KPM was found to be very weak. As discussed by other authors, discrepancies often occur

between teachers' perceived abilities/knowledge and their actual ability or practice (Howes et al., 2008; McMullen et al., 2006). For this reason, future research would benefit from observations of early childhood educators' practice to explore coherence (or otherwise) between educators perceptions of practice and the reality of classroom interactions.

Participating educators were questioned about their general behaviour and preferences regarding play materials to gain more information about the use of play materials in Quebec early childhood classrooms. Educators reported that having a variety of play materials was the most important criterion for children's development. They considered this criterion more important than the quality or the quantity of the play materials available in their classroom, which is comparable to findings by Montie et al. (2006). This international study revealed that having a large variety of play materials available in the preschool classroom was indeed related to children's improved cognitive performance at age seven years (Montie et al., 2006).

Additionally, participating educators reported that play materials offered by major toy companies (e.g., Fisher-Price/Mattel, Hasbro/Lego, Mahattan Toys, and Jocus) were appropriate for early childhood settings and that they excercised control over what was purchased for their classrooms, which was a positive finding. Educators also stated that the play materials in their classrooms were developmentally appropriate. This is intriguing since the present study established that their declarative KPM was very weak and this therefore points to a disconnect between their perceived knowledge and declarative KPM as evident in the data. It appears that educators perceived that they knew what was appropriate for children's development, however, when they were prompted by the questionnaire to indicate appropriate developmental milestones and associated play materials according to various age groups and domains of development, they answered incorrectly more than half

of the time. Although this information is based on educators' perceptions, their perceptions of what is available could help explain their KPM as well as guide future research to include actual observations of classrooms and evaluations of play materials on the market.

Even though these findings are preliminary and only declarative knowledge of KDM and KPM could be assessed (which makes it difficult to establish if this truly represents the participating educators' level of knowledge), it is fair to say that these results may help begin to uncover some of the elements that may contribute to the lack of developmentally appropriate play materials in child care centres in Quebec. One path that could be considered in the future as an extension of this research is the possible effect of professional development (Heisner & Lederberg, 2008; Tout, Zaslow, & Berry, 2006) to address identified low levels of KDM and KPM.

Developmentally Appropriate Practice: Beliefs and Practices

Developmentally appropriate practice (DAP) is presently used in the field of ECE as the basic foundation for best practices and thus, the present study required educators to report their beliefs (BDAP) and practices regarding developmentally appropriate practice (PDAP) (Burt et al., 2000; Charlesworth, et al., 1991; 1993; Copple & Bredekamp, 2009; McCarty et al., 2001; McMullen et al., 2006). According to the ratings established in the Kim (2005) study, the present educators received *medium-high* DAP scores (average 73.39% versus present 74.42%). Specifically, educators obtained a slightly higher score for their BDAP compared with their PDAP (see Table 4).

These findings are consistent with many literature reviews conducted on the topic. Educators usually report higher BDAP than PDAP and their self-reported PDAP are usually higher than what is directly observed in the classroom (Heisner, 2008; Pajares, 1992; Vartuli, 2005). These findings may relate to the realities educators face in the

classroom, where they may have strong BDAP but have difficulty translating them into effective practices (Bryant et al., 1991; Charlesworth, et al., 1991; McMullen, 1999; McMullen et al., 2006; Vartuli, 1999). Some possible influences such as lack of resources, lack of support from the center director, and/or high ratios, may interfere in educators putting their beliefs about DAP into practice.

Yet, educators who scored high on BDAP also scored high on PDAP which indicates that they were more likely to report that they practice DAP. This is comparable to results from a large body of research about the relationship between teachers' reported beliefs and their reported practices (Brown et al., 2006; Cassidy & Lawrence, 2000; Charlesworth et al., 1993; Kintner, 2008; Maxwell et al., 2001; McMullen et al., 2006). Kintner (2008), for example, found that preschool teachers who reported having strong BDAP also reported implementing practices that were developmentally appropriate (Kintner, 2008). Several studies have also reported strong relations between teachers' beliefs and their practices and classroom quality (Bryant et al., 1991; Charlesworth et al., 1991; 1993; Kintner, 2008; Lambert et al., 2006; Maxwell et al., 2001; McCarty et al., 1998; 2001; McMullen et al., 2006; Pajares, 1992; Saracho & Spodek, 2007; Vartuli, 1999). These associations may help the field clarify their efforts in increasing the quality of ECEC.

It is commonly recognized that beliefs and values are difficult to change (Pajares, 1992). They can usually only be altered through lengthy training. Thus longer training programs are associated with higher quality early childhood education practices since it is believed that longer training is successful in helping ECE students gain more appropriate ECE thinking, philosophy, and approach (Saracho & Spodek, 2007).

Since 1997, child care centres in the province of Quebec have utilized the educational program developed by the Government of Quebec (Gouvernement du Quebec, 2007b). The

educational program is play based, encourages the development of the whole child (i.e., five dimensions of development) and promotes that activities should be based on each individual child's needs which is the premise of DAP (Copple & Bredekamp, 2009; Gouvernement du Quebec, 1997; 2007b). In the present study, the participating educators reported basing their classroom planning and activities on the provincial Child Care Educational Program; therefore, the provincial program may have played an important role in educators' strong beliefs about DAP (Gouvernement du Quebec, 1997; 2007b). It is assumed that ECE training programs across the province adhere to the philosophy behind the educational program developmentally appropriate practice, which in turn may have influenced the participating educators' beliefs.

Nonetheless, some studies report inconsistencies between teachers' reported developmentally appropriate beliefs and their observed practices (Bryant et al., 1991; Charlesworth, et al., 1991; Howes et al., 2008; Jones & Gullo, 1999; McMullen, 1999; McMullen et al., 2006; Vartuli, 1999). Similarly, the present study reports that educators' perception of their own knowledge about play materials (as gathered by the questions such as, *I use my own personal knowledge to select play materials*), in particular, is not consistent with their level of declarative KDM and KPM as assessed by the survey.

This inconsistency may be explained by reviewing the literature on the relation between level of education, knowledge and practice. Educators with higher education and specialized training in ECE (so subsequent stronger knowledge of child development) are presumed to provide children with higher quality classrooms and more appropriate practice (Burchinal et al., 2002; Drouin et al., 2004; Fukkink & Lont, 2007; Goelman et al., 2000; Goelman et al., 2006; Howes et al., 2003; Saracho & Spodeck, 2007; Whitebook, 2003b; Whitebook et al. 2009b). Higher education in ECE has also been found to modify

educators' beliefs in a developmentally appropriate way (McCarty et al. 1998; 2001; Saracho & Spodek, 2007). Educators gain more specialized knowledge about developmental theories as well as appropriate teaching methods that promote children's development through longer training. Longer training generates more developmentally appropriate beliefs, appropriate classroom behaviours, and increased exposure child development theories and may lead teachers to have more appropriate beliefs about young children's education (Cassidy et al., 1995; Kintner, 2008). However, the present findings seem to contradict these past research claims. The type of degree that educators' possessed in ECE was not related to their level of KDM.

The following section will examine each of the three research questions addressed by this study.

Discussion of Research Questions

The study's first research question was: *What is the relationship between educators' knowledge of developmental milestones and the knowledge of appropriate play materials?*

A high quality EC classroom requires that the physical environment and the play materials match the developmental levels of the children (Copple & Bredekamp, 2009; Gestwicki, 2007; NICHD, 2002; 2003; 2003b; 2004; 2006; Yeates et al., 2001). Child care quality in the province of Quebec has been rated as *mediocre* or *minimal* (Drouin et al., 2004; Goelman et al., 2006; Japel et al., 2005). In particular, results from Canadian and Quebec studies on the quality of child care centres revealed a lack of developmentally appropriate play materials, therefore this study was undertaken to investigate some of the factors that may be causing this problem (Bigras & Japel, 2007; Drouin et al., 2004; Goelman et al., 2006; Japel et al., 2005). Since early childhood educators are said to be the most influential factor in ECEC quality, some educator characteristics that have been found

to impact quality were investigated (Bigras et al., 2010; Charlesworth et al., 1991; 1993; Daniels & Shumow, 2003; Doherty & Stuart, 1996; Drouin et al., 2004; Friendly & Prentice, 2009; Goelman et al., 2006; Kim, 2005; McMullen & Alat, 2002; OECD, 2004; Saracho & Spodeck, 2007).

The study's first hypothesis: Educators' knowledge of developmental milestones (KDM) are related to their knowledge of appropriate play materials (KPM), was supported. Educators' KDM and KPM were found to be related.

Participating educators with strong KDM were found to have strong KPM and educators with weak KDM were found to have weak KPM. These findings indicate that educators who were able to correctly identify the milestone for each age group also correctly identified the play materials suitable for that specific age group and also appropriate for that specific milestone and vice-versa.

Educators with stronger declarative KDM seemed to either have the accessible knowledge about which play materials were appropriate for each age group, or were able to infer, using their KDM, which play materials were appropriate. Regardless of if they deduced what was appropriate or had concrete knowledge about appropriate play materials, their level of KDM helped them be better prepared to evaluate and select developmentally appropriate materials. Since the overall finding was that participating educators scored low on their declarative knowledge and that KDM and KPM were associated, this could potentially help explain the lack of developmentally appropriate play materials in Quebec EC classrooms.

The examination of educators' level of declarative KPM was a novel feature of the present study hence the literature associated with this specific area of knowledge is limited. Yet, there is a growing body of literature on the importance of high quality child care

environments for children's proper development and the importance of well and purposefully designed learning environments (Beach & Friendly, 2007; Bullard, 2010; Friendly et al., 2006; Gouvernement du Quebec, 2007b; Hohmann et al., 2008; Maxwell, 2007; NICHD, 2002; 2003; 2003b; 2004; 2006; Yeates et al., 2001)

A well planned and organized learning environment, including well selected and appropriate play materials, promotes a supportive environment (Goelman et al., 2006; Hohmann et al., 2008; Layzer & Goodson, 2006; Maxwell, 2007; Sutterby & Frost, 2006; Trepanier-Street, et al., 2007). Supportive learning environments allow young children to have meaningful and productive interactions with the material, their peers, and the educators, as well as achieve crucial developmental milestones (Drew, Christie, Johnson, Meckley, & Nell, 2008; Hohmann et al., 2008). A supportive learning environment helps foster trust, autonomy, initiative and self-confidence in young children. These characteristics in return, help prepare children to learn skills and concepts (Hohmann et al., 2008). According to the High Scope Research Foundation, the guidelines to choosing appropriate play materials are as follows:

- Materials should reflect children's interests
- Materials should be developmentally appropriate (DAP)
- Provide items that can be used in a variety of ways
- Provide materials that offer children opportunities to engage with curriculum content.
- Materials should support different types of play
- Materials should reflect children's experience, culture and reflect diversity in an unbiased way
- Materials should be safe, clean and well maintained" (Hohmann et al, 2008, p. 136)

Well chosen, developmentally appropriate play materials can easily and serve independently as a source of “scaffolding”, challenging children just enough to help them move to a higher skill or concept level (Copple & Bredekamp, 2009; NAEYC, 2009b). Play materials identified as being appropriate for children’s development signifies that the materials are not too easy or too difficult for the children. Children faced with play materials that are too challenging for them were found to be more distracted (i.e., shorter durations of focussed attention) (Di Francesco, 2004). A well chosen play material can be self sufficient, but when merged with adult or peer interactions, can have significant effects on children’s whole development (Copple & Bredekamp, 2009; Layzer & Goodson, 2006). The findings of the present study demonstrated that educators did not possess the proper knowledge to select appropriate play materials which diminishes the learning possibilities in the classroom as well as the classroom quality.

According to Drew et al. (2008) “The materials teachers choose to bring into the classroom reveal the choices they have made about knowledge and what they think is important for children to learn, including the content of applicable learning standards ” (p. 42). Based on this statement, it is reasonable to infer that educators with strong child development knowledge would include meaningful materials in the classroom and the present findings support this. Educators must have strong knowledge about the skills children have already achieved and which ones they are ready to learn, understood through developmental milestones, in order to provide them with suitable play materials.

Play materials are readily available in North American learning environments therefore educators do not necessarily need to be introduced to the functions of each piece. They do however, need to know if the materials are suitable for the children and know if the children possess the physical, cognitive, language, and social abilities to play

meaningfully with these materials. Based on the present findings, participating educators' levels of declarative KDM was associated with their KPM which suggests that their KDM seemed to determine to what degree they were able to provide appropriate play material in their classroom. Perhaps educators who have stronger knowledge about developmental milestones can better assess children's needs through observation and consequently provide appropriate play materials.

Since level of education and specialization in ECE has been strongly and consistently related to educators' practice and their classroom quality, a review of the programs offered to ECE students may provide clarification around the present findings (Burchinal et al., 2002; Drouin et al., 2004; Fukkink & Lont, 2007; Howes et al., 2003; Saracho & Spodeck, 2007; Whitebook et al., 2009).

CEGEP programs across the province (i.e., Diplomas and Attestations) are entirely government funded and regulated and so students could supposedly achieve comparable learning outcomes by the end of their program, regardless of which CEGEP they have attended. As a result, programs follow similar program maps and have very similar course content. In addition to two or three courses devoted to child development according to age groups (e.g., infants, toddlers and preschoolers), most programs offer separate courses specific to areas of development (e.g., movement), which include how to prepare appropriate educational materials and activities according to the children's needs and interests. Some also offer a course explicitly about children's learning environments. As mentioned previously, the functions of the play materials may be implicit for educators but they may require strong declarative or procedural KDM to be able to determine appropriate play materials.

In view of the fact that all educators across the province have gained some training about what constitutes “appropriate play materials”, why would their level of KPM not be independent of their KDM? Since KPM was related to KDM, it is assumed that selecting the appropriate play materials was not based on concrete memorization of which materials are suitable for each specific milestone but rather stemmed from their familiarity, comprehension and deconstruction of child development. Stronger KDM allowed educators to associate the stated milestones with the accurate age as well as evaluate the functions and purpose of the play materials and merge their understanding of where the child is developmentally with what the play material can offer. Also, since the play materials included in this study were varied (e.g., closed/open-ended, simple/complex), educators needed to rely their analysis of purpose the material could serve.

Furthermore, interesting results emerged from the examination of the KDM and KPM specific to age groups and domains of development. Noteworthy was the finding that educators with stronger KDM of younger age groups demonstrated weaker KDM of the older age groups. A possible explanation may be that educators who possessed experience with the younger aged children may have had less experience with the older children, impacting their KDM for those age groups with whom they did not work, resulting in weaker knowledge of those milestones. This could signify that teacher preparation should not only emphasize a strong education about children’s development but that educators’ knowledge is strengthened by their field experience. As mentioned in the results chapter however, this could prove to be helpful or detrimental, since educators may rely on inaccurate knowledge and/or understanding of children’s development. Recently, a large body of literature has focused on ECE professional development (Tout et al., 2006; Zaslow & Martinez-Beck, 2006). In light of the present findings, perhaps professional

development, while in the field, may help strengthen knowledge about age groups that educators do not encounter on a daily basis with the goal of ensuring well balanced knowledge about children's development.

Moreover, educators' KDM for the cognitive and language domains was related to the level of KPM. Since language is a component of cognitive development, it could be suggested that having a strong knowledge of cognitive development specifically may help educators make decisions about appropriate materials for all other domains.

According to Olson and Bruner (1996) "the first step in equipping teachers (or parents) for their task is to provide them access to the best available understanding of the mind of the child" (p. 12). Perhaps programs should focus on the cognitive domain in particular and future research could investigate if educators' knowledge of cognitive development helps frame their understanding of development as a whole.

As a constructivist, Piaget (1964) believed that teachers should design learning environments which promote active learning and help children become critical thinkers, and inventive and creative adults. It could be hypothesized that to create high-quality environments, which must contain developmentally appropriate play materials, educators should probably possess strong *declarative* and *procedural* knowledge about child development. Based on the notion that both declarative and procedural knowledge are important for educator decision-making and practice (Anderson, 1980; Bullard, 2010; Copple & Bredekamp, 2009; McDevitt & Ormrod, 2008; Scardamalia & Bereiter (2006)). Teachers need to know and understand how children develop, learn, think and solve problems in order to plan the learning environment accordingly (Daniels & Shumow, 2003; McDevitt & Ormrod, 2008).

The present study did not gather information about *if* and *how* knowledge of developmental milestones and appropriate play materials are integrated and transferred into educators' practice. Future research could investigate educators' KDM and KPM in conjunction with direct observations of their practice to have a more accurate view of their knowledge which could then also be related to observed classroom quality.

The outcome of the first research question offers an overview of participating educators' declarative knowledge about developmental milestones and appropriate play materials provides. These findings offer new considerations that may help explain the lack of appropriate play materials in child care centres across the province and consequently might assist in increasing the quality of the classrooms and offers a solution; ensure appropriate training and transferable knowledge about child development.

The second research question was: *What is the relationship between educators' knowledge of developmental milestones and their beliefs and/or practices of developmentally appropriate practice?*

Developmentally appropriate practice is presently the most well known and most used set of guidelines in early childhood education (Bredekamp, 1986; Bredekamp, 1987; Bredekamp & Copple, 1997; Copple & Bredekamp, 2009; Gestwicki, 2007; NAEYC, 1997; 2009a). Past studies of early childhood educators' developmentally appropriate practice found strong relations between their practice and their level of education and specialization. Higher degrees and/or specializations in ECE were associated with higher DAP and higher DAP were associated to high classroom quality (Kim, 2005; McCarty, et al., 2001; McMullen & Alat, 2002; Saracho & Spodek, 2007). Since the quality of centres in Quebec were deemed to be *mediocre* or *minimal*, the present study aimed to investigate educator characteristics that could play a part in the quality.

The current study explored educators' level of declarative knowledge of developmental milestones (KDM) which was found to be weak and educators reported high ratings of their DAP, both for beliefs (BDAP) and practice (PDAP). However, the hypothesis for this research question; educators' knowledge of developmental milestones (KDM) is related to their developmentally appropriate beliefs and practice (DAP), was not supported. Surprisingly, no significant relationships were found between educators' KDM and their BDAP or PDAP (see Table 12). These findings indicate that whether the educators demonstrated high or low declarative KDM did not seem to impact their beliefs or practice of DAP.

Developmentally appropriate practice is based on multiple principles. The first principle is knowledge of child development and learning therefore the present finding which suggests that there is no relationship between their knowledge of developmental milestones and DAP is unexpected. Developmentally appropriate practice requires the educators to be knowledgeable about age related characteristics, such as developmental milestones, that may help make decisions about activities, planning, and appropriate play materials for example (Bredekamp, 1986; Bredekamp, 1987; Bredekamp & Copple, 1997; Copple & Bredekamp, 2009). DAP is not a curriculum or a rigid set of standards but rather it is seen as a philosophy or an approach to be used to make decisions in an ECE environment based on child development knowledge (Bredekamp & Copple, 1997; Copple & Bredekamp, 2009; Lee, Baik, & Charlesworth, 2006). Hence, in theory, higher or stronger knowledge of child development should relate to higher BDAP and PDAP yet the present findings do not support this supposition.

In light of these surprising results, a few limitations can be considered to help explain this occurrence. As mentioned earlier in this paper, the section pertaining to the assessment

of the developmental milestones was created by the researcher and as a result, it is not a standardized measurement tool. In addition, the online survey prompted the participating educators to select an answer from available options (i.e., the accurate age group linked to the developmental milestone) and so, only *declarative* knowledge was assessed.

Evidence suggests that “knowledge of child development is related to appropriate expectations of and interactions with children” (Rickhy, 2010, p. 189). A developmentally appropriate practice can only take place if an educator accurately gauges children’s abilities and needs and intervenes accordingly with appropriate interactions or play materials to help the children achieve their full potential (Copple & Bredekamp, 2009; NAEYC, 2009b) . However, perhaps a different skill set or content should have been chosen to relate to DAP instead of developmental milestones. Future research could also examine theoretical knowledge of child development.

In addition, the lack of association between KDM and DAP, which could have been in part caused by the measurement tool, may have been caused by a *floor effect*. Since educators scored low on the KDM ($M = 7.05$) with a range of 2-12 but scored high on DAP ($M = 223.30$) a *floor effect* may have occurred rendering the correlations not significant. Another possibility is that, as stated in Heisner (2008) “The ill-defined nature of teachers’ work in the preschool classroom often leads to decisions based on what “feels” right rather than decisions based on theoretical knowledge (Pajares, 1992)” (p. 48). And so participating educators may have reported their DAP according to what “feels” developmentally appropriate and not based on their KDM.

In the past decade, early childhood educators’ levels of education as well as specialization in ECE have been found to be good predictors of educators’ level of beliefs and practices of DAP (Kim, 2005; McMullen & Alat, 2002). Since the mid 1990’s, the field

of ECE has assumed that a strong knowledge of child development is crucial for educators to plan and interact accordingly with young children (Daniels & Shumow, 2003; Doherty & Stuart, 1996; Drouin et al., 2004; Katz, 1996). Higher levels of education usually established by higher degrees (e.g., bachelor's degree versus college diploma) has been associated to stronger and higher level of knowledge of child development (Daniels & Shumow, 2003; Doherty & Stuart, 1996; Howes et al., 2003; Saracho & Spodek, 2007). Educators with higher levels of education were found to illustrate higher educator quality such as using easy-to-follow directions and high-level activities. Educators who specialized in ECE demonstrated strong child development knowledge and appropriate teaching practices as well as knowledge about how to implement developmentally appropriate practices (Bowman et al., 2000; McCarty et al., 2001; Saracho & Spodek, 2007). In contrast, Fukkink and Lont (2007) made an interesting finding about the impact of interventions and training programs and state that "learning gains appeared somewhat larger for the attitude domain, compared to the skills and knowledge domain" (p. 306). This may indicate that training or level of education may actually help gain stronger DAP as opposed to gaining a higher level of knowledge of developmental milestones.

The present findings seem to contradict past research and literature. Strong and advanced knowledge of child development has been related to better use of DAP and consequently, higher overall classroom quality (Bryant, Clifford, & Peisner, 1991; Goelman et al., 2006; Kintner, 2008; McCarty et al., 2001; Saracho & Spodek, 2007; Whitebook, 2003b; Zill et al., 2001). Yet, in the present study, the type of degree that educators' possessed which indicates their level of education in ECE, did not seem to affect their KDM but did seem to impact their beliefs of DAP. Participants mainly possessed a Diploma of College Studies (DCS), Attestation of College Studies (ACS) or Bachelor's

degree (B.A.) in ECE/Child Development (see Table 1). An educators' level of KDM, independently, may not determine if he or she will demonstrate a DAP. Speculations about why this specific variable did not correlate with DAP warrants attention. As stated early, this discovery may have been caused by how the KDM was assessed or the declarative nature of the knowledge.

In order for educators to display beliefs and practices reflective of a developmentally appropriate practice, they may need more insightful knowledge of child development such as knowing theories of child development and learning rather than simply knowing the developmental milestones. Past studies suggest that teachers with higher degrees had stronger beliefs of DAP (Kim, 2005). Likewise, the present study found that participating educators who possessed a Bachelor degree reported significantly higher developmentally appropriate beliefs and practices (BDAP and PDAP) than educators with an Attestation or a Diploma. Most types of training did not make a significant difference in educators' level of declarative KDM except for the Diploma which was found to relate to higher KDM in comparison to educators who did not possess any recognized training to become an ECE.

Perhaps a new body of literature emerging should be taken into consideration. Some researchers suggest that children's culture has not been taken into enough consideration in theories of "development" (Kyunghwa, & Johnson, 2007). Emerging paradigms may help us deepen our understanding about early childhood educators' knowledge in future research studies. As Daniels and Shumow (2003) stated "taking a developmental perspective means attempting to perceive the world from the child's perspective" (p. 518). Thus, as noted, numerous factors may have contributed to the lack association participating educators' KDM and their developmentally appropriate beliefs and practice. Perhaps the biggest challenge is the volatile or ambiguous nature of early

childhood educators' knowledge of child development (Daniel & Shumow, 2003, p. 96; McDevitt & Ormrod, 2008; Sheridan et al., 2009)

The study's final research question was as follows; *What is the relationship between educators' knowledge of appropriate play materials and their beliefs and/or practices of developmentally appropriate practice?*

As outlined in the literature review, high quality ECEC is consistently associated with more positive outcomes for children. According to Bredekamp and Copple (1997), a "well designed environment" is crucial to support a developmentally appropriate practice from educators (Bredekamp & Copple, 1997; Bullard, 2010; Copple & Bredekamp, 2009; Gouvernement du Québec, 2007b; Hohmann et al., 2008). The high quality of a physical environment relates to higher cognitive abilities in three year old children and the availability of a variety of play materials in the classroom relates to higher cognitive performance of children at seven years old (Maxwell, 2007; Montie et al., 2006). Elements from the environment and from early childhood educators' declarative knowledge about these elements can therefore support a DAP and it is suggested that educators make decisions about their DAP based on their knowledge of child development and learning (Bredekamp & Copple, 1997).

Motivated by findings of insufficient developmentally appropriate materials in child care centres across Quebec, the present study's objective was to examine educators' characteristics that could potentially be influencing this dearth of material and the *mediocre* quality. Early childhood educators' knowledge of appropriate play materials (KPM) and their developmentally appropriate practice was surveyed. Participating educators' declarative KPM was found to be associated with their beliefs (BDAP) about developmentally appropriate practice (BDAP) but not their practices of DAP (PDAP)

therefore the present hypothesis; educators' knowledge of appropriate play materials (KPM) is related to their developmentally appropriate beliefs and practice (DAP), was not supported in its entirety.

This finding indicates that educators with strong declarative KPM also reported higher ratings of BDAP and educators with low/weak declarative KPM demonstrated lower ratings of BDAP. Since this is a correlational study, the direction of the relationship is unknown and this prompted the researcher to question if educators' BDAP influenced their KPM or whether it was their KPM that would influence their BDAP. The present study could not answer this question but future research would be encouraged to examine whether BDAP directly impacts KPM or vice-versa, since this would help focus the field's efforts in providing formal training and professional development catered to the needs of the ECE (Zaslow, 2009).

This finding is unexpected and difficult to explain since KPM could be considered more *procedural* or *practical* knowledge versus *theoretical* knowledge such as KDM and therefore should have been correlated with the practice variable of DAP more than the educators' BDAP. On the other hand, "many studies showed that teachers had stronger BDAP than was demonstrated by their actual classroom practices" (Kim, 2005, p. 57). As mentioned earlier, whether or not educators believe and practice DAP may be dependent on many factors and also influenced by the realities of the classroom. The realities of the daily routine and perhaps the constraints of the physical environment as well as lack of resources may have impacted educators' ability to "practice" DAP (Bryant et al., 1991; Charlesworth et al., 1991; McMullen, 1999; McMullen et al., 2006; Vartuli, 1999).

Earlier in this chapter the first principle based on the knowledge of child development was discussed but there also exists five guidelines to help educators put DAP into practice.

One specific guideline about the DAP is “Teaching to enhance development and learning” (NAEYC, 2009, p. 17) and they suggest achieving this through planning the “environment, schedule and daily activities to promote each child’s learning and development” which includes providing a “rich variety of materials” (NAEYC, 2009, p. 18). A strong BDAP means educators feel it is important that, for example, play materials and activities are adapted to each child’s needs and interest, that children are given choices in their plans so they can follow their own interests and needs, and that a collaborative approach to learning is used. The fact that the educators’ BDAP is what was associated with their KPM may suggest that an educator must truly embody DAP in order to be able to determine which play materials are appropriate. Perhaps educators who reported higher BDAP had stronger KPM because they understood and could see the play material’s potential. An educator with stronger DAP would know how to re-introduce play materials into new contexts, and how to plan to use it according to the children’s development (Bredekamp & Copple, 1997; Bullard, 2010; Copple & Bredekamp, 2009).

Moreover, particularly interesting was the finding that educators’ KPM relating to the cognitive milestones, but not other domains of development, was strongly related to their DAP (i.e., BDAP and PDAP). Once again, it seems that educators’ knowledge of children’s cognition creates more associations between their KDM, beliefs and practice than their knowledge of other domains. Some literature suggests that educators who possess degrees in psychology or child development, which does include more extensive instruction on cognition and the understanding of the mind than other degrees, usually demonstrate more DAP which may help explain this finding (Kintner, 2008; McMullen & Allat, 2002).

Chapter VI

Conclusion

The objective of the present study was to investigate elements that may have contributed to the *mediocre* or *minimal* quality scores assigned to child care centres in the province of Quebec and more particularly, the low quality of the environment (e.g., lack of appropriate play materials). One facet that past research in province had not examined in relation to quality and appropriate play materials was educators' characteristics and therefore an in-depth examination of educators' characteristics was undertaken.

A list of educator characteristics that could potentially be associated with the quality of early childhood education and care classroom was investigated based on contemporary theories of ECEC quality. This study gathered information about the educators' education, centre and classroom, gathered information about their knowledge of developmental milestones and appropriate play materials and self-reported beliefs and practices of developmentally appropriate practice.

Ultimately, the data show that knowledge of developmental milestones is not related to early childhood educators' developmentally appropriate practice but is linked to their knowledge of appropriate play materials which is a component of the quality of the learning environment. Also, participating educators' beliefs of developmentally appropriate practice are related to their knowledge of appropriate play materials.

These results support past findings but also contradict others. Nonetheless one of the clear focal points of this study is the fact that educators who participated in this study demonstrated weak declarative knowledge of developmental milestones and appropriate play materials which is something that should be investigated further and may generate change in ECE programs and professional development.

Limitations

This study includes limitations which warrant attention since without these forewarnings, inappropriate conclusions could be inferred.

One of the major limitations of the present study is the small sample size. The province of Quebec counts approximately 26 228 early childhood educators working in child care centres and 5 000 invitations were sent out to various centres. Approximately 4.2% of the educators (i.e., 1082) responded to the invitations but only 1.2% of the educators across the province (i.e., 308) completed the entire survey and was therefore retained for analysis. This very low response rate is viewed as a major limitation. The size of the sample was large enough to conduct valid statistical analysis, however it is difficult to generalize the findings to the entire population across the province. The time line for the recruitment and data collection phase of this study was initially set at two months but was increased to four months in order to recruit more participants. The time limit for this study did not allow the researcher to extend the recruitment for a longer period but future research should consider either longer recruitment periods or multiple recruitments.

Educators completed an online survey which gathered information about their knowledge of developmental milestones, appropriate play materials, and their beliefs and practice of developmentally appropriate practice. An online version of the survey was used rather than interviews of the educators or direct observations of classroom practices because an online survey would potentially provide more breadth of data from a large number of educators from across the province (Creswell, 2002; Muijs, 2004). However, this method of data collection was problematic.

One limitation is the instrument measurement tool used to assess the educators' knowledge and developmentally appropriate practice. The section pertaining to the

knowledge of developmental milestones (KDM) and knowledge of appropriate play materials (KPM) was developed by the researcher. The content included in the matching questions (i.e., developmental milestone and play materials) was taken from valid and renowned sources and the Cronbach alpha tests demonstrated the tool was reliable.

Also, the level of KDM and KPM was established according scores educators received on the survey questions. Although this section of the survey resembled an academic assessment of their knowledge, the educators may have scored low because of the testing process itself or may not have been able to remember the accurate information as opposed to not knowing or not understanding the proper answer which may not necessarily be representative of their knowledge. Therefore these types of questions could only assess *declarative* knowledge and not *procedural or contextual* knowledge which rendered any objective conclusions difficult to make and as a result, it was clearly identified in the chapters that *declarative* knowledge was considered, not global knowledge (Anderson, 1980; Scardamalia & Bereiter, 2006).

Another limitation is that all information gathered was “self-reported”. Educators’ reports as reflected in the responses to the questionnaire and their actual practice in their classrooms may differ. However, the objective of the study was to explore the potential relationship between early childhood educators’ knowledge of developmental milestones, appropriate play materials, and their beliefs and practice of the developmentally appropriate approach. Strong correlations exist between self-reported beliefs and observed DAP beliefs and practices (Heisner, 2008; Howes et al., 2008; Kim, 2005).

Current research emphasizes the importance of in-service training, on-going education and professional development therefore some questions pertaining to educators’ professional development should have been included similar to past studies (Burchinal et

al., 2002; Drouin et al., 2004; Fukkink & Lont, 2007; Japel et al., 2005; Tout et al., 2006).

The recruitment process may have also caused some limitations. Emails and posting were forwarded to directors or centres as well as pedagogical consultants working with the centres in order to forward the invitation to educators. It is possible that some individuals may have purposefully neglected to forward the message to their educators/educators working in their centre by fear that the educators may divulge information about the practice done in their classrooms. However, the investigator acknowledges that this may have presented limitations since it is assumed that some administrators simply did not forward the message to the educators. One suggestion for future investigations would be to partner with either the government or associations and federations to recruit early childhood educators directly.

The present study focused solely on child “care” centres rather than early childhood education in general which would have included other types of organizations, recreational or educational for young children. This was done purposely since the supporting literature for this study was based on the quality of child care centres.

One final caution about this study is that, as many research examining elements that influence the quality of ECEC, it is a correlational study which implies that external variables not considered could explain the findings (Vandell, 2007). The possibility that some intervening variables may have not been considered as well as lack of triangulation between educators' declarative knowledge, DAP and the actual quality of their classroom seems problematic. However, the objective of this study was to examine characteristics of the educators that have, in the past, been related to quality, and independently correlate these characteristics with each other in order to have access to a larger sample size in the province of Quebec.

Future Research

In 2001 and 2004, the OECD recommended that countries create a “more unified approach to learning” (2001, p. 57) across their early childhood and primary education systems and it was proposed that a “national quality framework document” could contribute to higher quality (2004, p. 79).

Unfortunately, in 2011 Canada still does not have a unified system or a unified vision about the purpose and goal of early childhood education and child care. Efforts or developments made towards unification or a collaboration to increase the quality of ECEC or creating a National Child Care system is often lost or modified with changes in government (Friendly & Prentice, 2009). This directly impacts the quality of ECEC but one solution could be to conduct country wide assessments of the quality of educators to help understand where the weaknesses lie and where we can concentrate efforts- that could impact quality but would be lesser affected by changes in government or policies- ECE education.

Quebec is viewed as the pioneer of affordable and accessible child care in Canada having had a system in place since 1997. ECEC programs use the *Educational Program* which guides educators in their practice and helps maintain high quality interactions, learning environments, and programs (Gouvernement du Quebec, 1997; 2007b). However, as the *You Bet I Care!* study exposed, centres in Quebec received almost the lowest quality scores (Doherty et al., 2000; Goelman et al., 2000; Goelman et al., 2006). Even though these results could have been caused by bad timing, as the province was implementing its new system at the time as Bigras and Cantin (2007) proclaimed, prospective research should continue to investigate how to continue lead the way ECEC.

In light of the limitations, the present study and its findings support the need for a mandatory and national standard of practice in ECE in Canada. ECE educators should not only have the proper qualifications but a suggestion would be to have similar, universal training programs across provinces. This could ensure a uniformity as well as a high quality education based the most recent research on fundamental topics such as educational strategies and practice, child development and learning environment which have been shown to influence the quality of ECEC and children's outcome.

Future research in Quebec should include a triangulation between the educators' knowledge, DAP, observed practice and quality of their classroom. Researchers could gather information about the educators and their classroom through direct visits to the centres and correlate the results which could be possible with a smaller sample size or substantial funding and resources. This could provide the profession and governments with a precise viewpoint about *what*, *how* and *where* to invest in early childhood education and care to promote high quality services are offered to young children and their parents.

As mentioned earlier, one major limitation for this study is that the KDM and KPM was *declarative knowledge* which presents many challenges when trying to make generalizations about educators' actual knowledge or when trying to correlate with their practice. Future research could modify the KDM and KPM questionnaire in such a way to get at educators *procedural knowledge* which could be better suited for associated with observed practice of DAP.

After revisions are made to the knowledge section of the survey, the present study could be reproduced in each Canadian province and territory to allow a comparison of early childhood educators' knowledge and DAP across the country. This may help generate a consensus about the type of training and the specialized content needed as well as how to

obtain a universal vision of early childhood education. Obtaining data from the entire country would also help the field of early childhood education create a concrete plan to increase the quality of child care centres across the country. It would also be interesting to conduct experimental studies or longitudinal studies with control groups (i.e., high/low quality centres/educators) and document child outcomes such as the ones done by the NICHD or Japel et al. (2005).

Some studies suggest that it is the inappropriate beliefs and practices, more than the appropriate, that affect actual practice (Charlesworth et al., 1993; Heisner, 2008; Kim, 2005; McCarty et al., 2001). Heisner (2008) reported that CDA training decreased inappropriate beliefs and practice and so increased the appropriateness of the overall practice. Hence future research could investigate more closely educators' inappropriate beliefs and practice in relation to their knowledge and training in Quebec and maybe also in relation to professional development.

Implications for Early Childhood Education and Care

Providing high quality ECEC is an essential investment for the well being and the future of Canadian children. The present study described participating educators' level of declarative knowledge and self-reported developmentally appropriate practice in the province of Quebec. The relationships were shown between educators' knowledge of developmental milestone, appropriate play materials, and their beliefs and practice of the developmentally appropriate approach which is regarding as sets of "best practices" were identified which has multiple potential implications towards field of ECE.

The educators who participated reported high developmentally appropriate beliefs and practices which is a positive and encouraging finding. Perhaps the studies which assessed the quality of the child care centre in Quebec did not take this aspect into

consideration? Centres might have received high scores on quality if DAP was taken into consideration. This could be another consideration for future research.

Findings revealed that early childhood educators scored low on questions regarding developmental milestones and appropriate play materials. Although the study could only assess educators' declarative knowledge of developmental milestones and appropriate play materials through this type of survey, some important information can be drawn from these findings.

This can inform CEGEPs, colleges, and Universities offering early childhood education programs. The level of knowledge of developmental milestones was found not to be significantly related to DAP but is still hypothesized to have an impact on child care quality and educators' nonetheless scored low on KDM and KPM. Therefore it is still recommended that ECE programs include more content related to child development, specifically developmental milestones, and learning environment courses, specifically appropriate play materials for each age group and domain of development.

But more importantly, as this study has demonstrated, programs should make sure that students can integrate and transfer their knowledge into their practice. *Declarative* knowledge has its purpose in serving as the foundation for *procedural* knowledge and so both must be strengthened. Knowing the exact developmental milestones and appropriate play materials for each age group and each domain of development is beneficial for the young children's development. This could also be achieved through ongoing education or professional development where educators could refresh their knowledge and ascertain that they transfer their knowledge into their practice (Burchinal et al., 2002; Heisner, 2008; Whitebook, 2009b)

Interestingly, educators' knowledge related to cognitive development (i.e., cognitive milestones and cognitive play materials) seemed to have an effect on their overall knowledge and DAP. High scores on the developmental milestones and play materials related to cognitive development was strongly related to all other domains of development which seems to suggest that if educators are able to identify what is related to cognition, how children develop cognitively (e.g., how they learn, language, memory, attention), they may they may be able to understand how children develop physically, socio-emotionally.

It could be presumed that cognition serves as the foundation for all other skills in each domain. All domains of development interrelate but the cognitive domain and theories associated with that domain, including language, seem to lead all other domains. These interesting findings surely require future examination and if this is found to be true, perhaps ECE training programs could emphasize content surrounding children's cognitive development.

Additionally, these findings offer information about the self-reported beliefs and practice regarding developmentally appropriate practice (DAP). Quebec educators who participated in this study reported adhering to DAP. Since DAP is at the core of most early childhood education and care centres and programs internationally and DAP is one piece of quality, the rest of the Canada could potentially follow how and what Quebec has instilled in their educators through their ECE programs and the educational program used in each centre across the province.

Saracho and Spodeck (2007) reveal that professional development in early childhood education impacts the quality of the ECE programs and predicts children's development. Continuous and consistent professional development has the enormous potential of increasing the quality of the educator, the quality of the classroom and consequently the

quality of the education and experience young children have in those classrooms (Bigras et al., 2004; Tout et al., 2006; Zaslow et al., 2009). Since this study was conducted with experienced educators, pedagogical consultants and professional development associations could use this information to adapt workshops accordingly.

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core/ongoing_research/faces/faces00_4thprogress/

faces00_4thprogress.pdf.

Appendix A: Invitation Message: French

**Éducatrices recherchées pour une étude québécoise sur la petite enfance/
Educators needed for research on early childhood education in Quebec
(English Message Follows)**

Éducatrices recherchées pour une étude québécoise sur la petite enfance

C'est votre dernière chance de participer à cette étude!
Votre région XXXXX est SOUS- représentée.

PARTICIPEZ ET RECEVEZ DE LA DOCUMENTATION

Bonjour.

Nous cherchons à contacter TOUTES les éducatrices en petite enfance du Québec pour les inviter à remplir, ANONYMEMENT, un questionnaire en ligne (qui prendra 20 minutes). En échange, elles pourront recevoir un document sur la pratique adaptée au développement.

Il suffit d'accéder au lien suivant :

http://www.surveymonkey.com/s.aspx?sm=vMvofjkjStiDdiYR2A6ioQ_3d_3d

Les résultats de cette étude aideront à améliorer la qualité des services de garde, à obtenir plus de subventions et à améliorer la qualité de la formation relative à la petite enfance offerte au Québec.

Veuillez faire parvenir ce courriel et le lien à TOUTES les éducatrices se trouvant sur votre liste de personnes-ressources. Si vous avez des questions, n'hésitez pas à communiquer avec moi :

Je vous remercie de votre attention.

Nathalie Di Francesco, candidate au Ph. D.

Étude sur la pratique adaptée au développement : le développement de l'enfant et le matériel de jeu. Université d'Ottawa

Appendix A: Invitation Message: English

Educators needed for research on early childhood education in Quebec**PARTICIPATE AND RECEIVE !!!!**

Hello,

We would like to contact ALL early childhood educators in Quebec to invite them to complete, ANONYMOUSLY, an online survey (20 minutes) AND they could receive, in exchange, a document on developmentally appropriate practice.

Simply visit the link;

http://www.surveymonkey.com/s.aspx?sm=vMvofjkjStiDdiYR2A6ioQ_3d_3d

Findings from this study will help increase the quality of child care centres, funding, as well as the quality of early childhood training in Quebec.

PLEASE forward this message and web link to ALL educators on your contact list. If you have any questions, please do not hesitate to contact me at :

Thank you for your time,

Nathalie Di Francesco, Ph. D. (candidate)

Developmentally appropriate practice: Child Development and Play Materials study.

University of Ottawa

**Appendix B: Survey: Developmentally Appropriate Practice: Children's
Development and Play Materials- English**

N.B. The format of this document has not been adjusted since the questions will be entered in the online format.

1. Voulez-vous compléter ce questionnaire en français?
Would you like to complete this survey in English?
Francais
English

ARE YOU AN EARLY CHILDHOOD EDUCATOR IN QUEBEC?

This message is to invite you to participate in the Developmentally appropriate practice: Child Development and Play Materials study, conducted by Nathalie Di Francesco, M.A. as part of her doctoral thesis and supervised by Dr. Ruth Kane at the University of Ottawa.

The purpose of this study is to gather information about the developmentally appropriate practice of early childhood educators across the province of Quebec as it relates to children's development and play materials.

Your participation would consist of completing the following online survey, which will take approximately 20-30 minutes to complete. You will be selecting your chosen answer from multiple choices. Your participation in this study could contribute to the advancement of the quality of post-secondary programs (e.g., CEGEP and University programs) and professional development in early childhood education. The findings of this study will offer information about the beliefs and practice of educators in the province of Quebec regarding developmentally appropriate practice (DAP). This information could help adapt present or potential professional development sessions as well as training programs. Pedagogical consultants and professional development associations could use the information gathered to adapt their sessions to the needs of educators across the province.

You will be required to reflect upon and volunteer information about your practice in early childhood education and your knowledge of children's development and play materials. Please be assured that there are no right or wrong answers to these questions, the purpose of the study is simply to gather information from early childhood educators in Quebec.

You will not be asked to give any personal or identifiable information during the completion of the survey therefore your participation will be kept confidential and anonymous. The content of your answers will only be used together with all other participants' answers and will not be used or analyzed alone. The data collected will only be used to inform practice at the post-secondary level and professional development.

The data collected (i.e., electronic answers to the survey questions) will be kept in a secure manner. The data will be kept in the researcher's computer under secured access in her office for a minimum of five years and up to 10 years. Only the researcher and her supervisor will have the password and access to the secured files. The supervisor will also have a copy of the data.

You are under no obligation to participate and if you do choose to participate, you may withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If in the course of answering the survey you decide not to participate you can withdraw by not submitting your survey.

In addition, if you are interested in receiving a document on DAP, you may provide your contact information in the designated area at the end of the survey. Please note that your contact information will in no way be linked to your completed survey and will not be used for any other purpose than to forward the DAP document.

Accordingly, if you would like to participate in the present study and therefore accept to complete the subsequent online survey, please select the "Accept" button. Selecting the "Accept" button will confirm that you have read and acknowledged the conditions surrounding the study and that you accept to participate in the above research study conducted by Nathalie Di Francesco of the Faculty of Education at the University of Ottawa, which is under the supervision of Dr. Ruth Kane.

If you have any questions about the study, you may contact the researcher or her supervisor.

It is recommended that you print this page for future reference.

YOU MUST COMPLETE THE ENTIRE SURVEY FOR IT TO BE SUBMITTED TO THE STUDY.

Researcher

Nathalie Di Francesco, M.A.
Faculty of Education
University of Ottawa, Ottawa

Supervisor

Dr. Ruth Kane
Faculty of Education
University of Ottawa, Ottawa

If you have any questions regarding the ethical conduct of this study, you may contact the Protocol Officer for Ethics in Research, University of Ottawa

2. DO YOU HAVE 20 minutes?

Do you ACCEPT to participate in the present study?

(PLEASE NOTE that you cannot re-access your survey therefore you must answer all questions once you have started and must answer all questions to receive the DAP document)

Classroom

3. Please indicate how strongly you agree or disagree with each of these statements

- 1) Strongly disagree**
- 2) Disagree**
- 3) Neither agree nor disagree**
- 4) Agree**
- 5) Strongly agree**

3.1

Play materials offered by major toy companies such as Fisher-Price/Mattel and Hasbro/Lego are appropriate for early childhood settings

3.2 Play materials offered by specialized/educational toy companies such as Manhattan toys and Jocus, are appropriate for early childhood settings

3.3 The most important criteria for children's development is: The quality of play materials

3.4 The quantity of play materials

3.5 The variety of play materials

4. Please indicate the frequency of each of these statements

- 1) *Never*
- 2) *Rarely*
- 3) *Sometimes*
- 4) *Very often*
- 5) *Always*

4.1 I refer to the educational program developed by the Ministère de la Famille et des Aînés (MFA)

4.2 I base my activities and planning according to the educational program developed by the Ministère de la Famille et des Aînés (MFA)

4.3 My performance as an educator is evaluated by my director

4.4 My centre offers me opportunities for professional development (e.g., workshops, conferences)

4.5 I find and participate in professional development on my own (e.g., workshops, conferences)

4.6 I choose the play materials for my classroom

4.7 My director chooses the play materials specifically for my classroom

4.8 Other educators choose the play materials for my classroom

4.9 Consultants choose the play materials for my classroom

4.10 I have an input into what play materials are bought

4.11 Play materials are chosen/bought according to the centre's budget

4.12 Play materials for my classroom are chosen/ bought whenever needed

4.13 Play materials for my classroom are chosen/ bought at the same time as the other classrooms

4.14 Play materials are selected according to: The needs of the entire centre

4.15 The needs of each classroom

- 4.16 The needs of the children in each classroom
- 4.17 What is popular (e.g., advertising)
- 4.18 Children's needs (e.g., based on observations)
- 4.19 In collaboration with the children, chosen according to their interests and developmental needs
- 4.20 I use my own personal knowledge to select play materials
- 4.21 I use information from experts in the field to select play materials
- 4.22 I use information from the toy companies to select play materials
- 4.23 I use information from parents or peers in the field (i.e., experienced people) to select play materials
- 4.24 I use information from courses or professional development I attended to select play materials
- 4.25 I can find appropriate play materials for the children
- 4.26 Play materials on the market are appropriate for children's developmental needs
- 4.27 Play materials on the market are appropriate for children's interests
- 4.28 There are at least three (3) identical play materials of each
 - 4.29 Play materials are borrowed and shared between classrooms to meet the children's interests and needs
 - 4.30 Play materials are accessible to the children (e.g., the children can reach and get any material, at any time)

Knowledge of Developmental Milestones and Appropriate Play Materials

5. Each statement presents a skill a child could exhibit.

For each statement, indicate how old you think the child is to be displaying this skill (between 12-60- months) and what would be the most appropriate play material to stimulate this skill at this age?

Skill

Age

Play Material

Answer Order and Numerical Value

1. 12-24 months
2. 24-36 months
3. 36-48 months
4. 48-60 months

1. Pop-up boxes
2. Large interlocking plastic beads
3. Pictogram
4. Multiples of each play material
5. 5-10 piece stacking rings
6. Interlocking blocks
7. Flannel Story Board
8. Housekeeping materials (iron/ironing board)
9. Various colored counting bears
10. Stringing materials
11. Interactive story books
12. Dress up materials
13. Graduated blocks
14. Print making materials (letters, shapes, numbers)
15. Puppet Set
16. Group bingo game

5.1 Discovers cause and effect

1) 12-24 months

1) Pop-up boxes

5.2 Uses whole arm movement when scribbling with markers

1) 12-24 months

2) Large interlocking plastic beads

5.3 Uses holophrastic speech- one word to convey entire thought

1) 12-24 months

3) Pictogram

5.4 Enjoys companionship but does not play cooperatively

1) 12-24 months

4) Multiples of each play material

5.5 Stacks objects in order of size

2) 24-36 months

5) 5-10 piece stacking rings

5.6 Grasps large crayon with fist; scribbles enthusiastically on large paper

2) 24-36 months

6) Interlocking blocks

5.7 Utters 3 to 4 word statements; uses conventional word order to form more complete sentences

2) 24-36 months

7) Flannel Story Board

5.8 Watches and imitates the play of other children, but will seldom joins in; content to play alone

2) 24-36 months

8) Housekeeping materials (iron/ironing board)

5.9 Sorts objects logically into categories based on one dimension (i.e., color, shape or size)

3) 36-48 months

9) Various colored counting bears

5.10 Holds crayon between first two fingers and thumb (tripod)- not fist as earlier

3) 36-48 months

10) Stringing materials

5.11 Answers questions about familiar objects and events

3) 36-48 months

11) Interactive story books

5.12 Observes other children playing; may join in for a short time; often plays parallel to other children

3) 36-48 months

12) Dress up materials

5.13 Understands the concepts of “tallest”, “most” “biggest” “largest”

4) 48-60 months

13) Graduated blocks

5.14 Reproduces some shapes and letters

4) 48-60 months

14) Print making materials (letters, shapes, numbers)

5.15 Uses the prepositions “on”, “in”, and “under”

4) 48-60 months

15) Puppet Set

5.16 Plays cooperatively with others, participates in group activities

4) 48-60 months

16) Group bingo game

Developmentally Appropriate Practice: Beliefs and Practice

6. Please indicate the level of importance that you give to each following statements regarding early childhood education programs.

- 1) *Not at all Important*
- 2) *Not very Important*
- 3) *Fairly Important*
- 4) *Very Important*
- 5) *Extremely Important*

6.1 As an evaluation of children's progress, readiness or achievement tests are ____ .

6.2 It is ____ to use observation to plan and evaluate the curriculum.

6.3 It is ____ for activities to be responsive to each child's individual interests and individual differences (i.e., strengths and needs) according to their level of development.

6.4 It is ____ that each curriculum area is taught as separate subjects at separate times.

6.5 It is ____ for educator-child interactions to help develop children's self-esteem and positive feelings toward learning.

6.6 It is ____ to use one single approach for reading and writing instruction.

6.7 Instruction in letter and word recognition is ____ in early childhood.

6.8 It is ____ for the educator to provide a variety of learning areas with concrete materials (writing centre, science centre, math centre, etc.).

6.9 It is ____ for the educator to provide opportunities for children to select and create their own learning activities (e.g., cut their own shapes, decide on the steps to perform an experiment, plan their creative drama, art, and computer activities).

6.10 It is ____ for children to work individually at desks or tables most of the time.

6.11 Workbooks and/or ditto sheets are ____ in my classroom.

6.12 A structured reading or pre-reading program is ____ for all children.

6.13 It is _____ for the educator to talk to the whole group and for the children to do the same things at the same time.

6.14 It is _____ for the educator to move among groups and individuals, offering suggestions, asking questions, and facilitating children's involvement with materials, activities, and peers.

6.15 It is _____ for educators to use treats, stickers, and/or stars to get children to do activities that they don't really want to do.

6.16 It is _____ for educators to regularly use punishments and/or reprimands when children aren't participating.

6.17 It is _____ for educators to allocate extended periods of time for children to engage in play and projects according to their needs.

6.18 It is _____ for children to write by inventing their own spelling.

6.19 It is _____ for children to color within pre-drawn forms.

6.20 It is _____ to read stories daily to children, individually and/or on a group basis.

6.21 It is _____ for children to dictate stories to the educator.

6.22 It is _____ for children to see and use functional print (telephone book, magazines) and environmental print (cereal boxes, potato chip bags).

6.23 It is _____ to provide many daily opportunities for developing social skills (e.g., cooperating, helping, talking) with peers in the classroom.

6.24 It is _____ that books, pictures, and materials in the classroom include people of different races, ages, and abilities and both genders in various roles

6.25 It is _____ for parents/guardians to be involved in ways that are comfortable for them and for educators to solicit and incorporate parent's knowledge about their children for assessment, placement, and planning.

6.26 It is _____ for strategies like setting limits, problem solving, and redirection to be used to help guide children's behaviour.

6.27 It is _____ for educators to integrate each child's home culture and language into the curriculum throughout the year and for activities to be responsive to the cultural diversity of the children.

6.28 It is _____ that educators maintain a quiet environment.

6.29 It is _____ to focus on teaching children isolated skills by using repetition and recitation (e.g., reciting ABCs).

6.30 It is _____ to follow a prescribed curriculum plan without being distracted by children's interests or current circumstances.

7. Please indicate the frequency of each activity

- 1) Almost Never (less than monthly)**
- 2) Rarely (monthly)**
- 3) Sometimes (weekly)**
- 4) Regularly (2-4 times a week)**
- 5) Very Often (daily)**

How often do children in your classroom....

7.1 Build with blocks

7.2 Select from a variety of learning/interest areas and projects (e.g., dramatic play, construction, art, music, science experiences, etc.)

7.3 Have their work displayed in the classroom

7.4 Experiment with writing by drawing, copying, and using their own invented spelling

7.5 Play with games, puzzles, and construction materials (e.g., Tinker Toys, Bristle Blocks)

7.6 Explore science materials (e.g., animals, plants, wheels, gears, etc.)

7.7 Sing, listen, and/or move to music

7.8 Do activities using large muscles (e.g., balancing, running, jumping) planned and directed by the educator

- 7.9 Use manipulatives as directed by educator (e.g., pegboards, Legos, and Unifix Cubes)
- 7.10 Use commercially-prepared phonics activities (e.g., LeapFrog)
- 7.11 Work in assigned ability-level groups
- 7.12 Circle, underline, and/or mark items on worksheets
- 7.13 Use flashcards with ABCs, sight words, and/or math facts
- 7.14 Participate in rote counting
- 7.15 Practice handwriting on lines
- 7.16 Color, cut, and paste pre-drawn forms
- 7.17 Participate in whole-class, teacher-directed activities
- 7.18 Sit and listen for long periods of time until they become restless and fidgety
- 7.19 Have the opportunity to learn about people with special needs (e.g., a speaker or a character in a book)
- 7.20 Receive rewards as incentives to participate in classroom activities in which they are reluctant participants
- 7.21 See their own race, culture, language reflected in the classroom
- 7.22 Get placed in time-out (e.g., isolation, sitting on a chair, in a corner, or being sent outside of the room)
- 7.23 Experience parents reading stories or sharing a skill or hobby with the class
- 7.24 Engage in child-chosen, educator-supported play activities
- 7.25 Draw, paint, work with clay, and use other art media
- 7.26 Solve real math problems using real objects in the classroom environment that are incorporated into other subject areas
- 7.27 Get separated from their friends to maintain classroom order

7.28 Engage in experiences that demonstrate the explicit valuing of each other (e.g., sending a card to a sick classmate)

7.29 Work with materials that have been adapted or modified to meet their needs and age group

7.30 Do concrete activities in the appropriate learning/interest area (e.g., writing in writing centre, math in math centre, science in science centre)

Personal Information**8. Gender**

- 1) Female
- 2) Male

9. Age

- 1) 18-24
- 2) 25-29
- 3) 30-39
- 4) 40-49
- 5) 50-59
- 6) 60-65
- 7) 65+

10. Statistics Canada proposes a multidimensional definition of ethnicity that accounts for aspects such as ethnicity, origins or ancestry, culture, identity, language, and religion.

According to this definition, which of the following ethnic groups do you most strongly identify with?

- 1) Caucasian
- 2) East Asian
- 3) South Asian
- 4) West Asian
- 5) African
- 6) South African
- 7) Arab
- 8) Aboriginal
- 9) Other; Please specify

11. Languages Spoken

- 11.1 French
- 11.2 English
- 11.3 Others;
- 11.4 Please specify

Education

12. What is the highest degree you obtained regardless of the field of study?

- 1) Elementary
- 2) High School Diplomat (DES)
- 3) Attestation of College Studies (ACS)
- 4) Certificate of College Studies (CCS)
- 5) Diploma of College Studies (DCS)
- 6) University Certificate
- 7) Bachelor's Degree
- 8) Master's Degree
- 9) Doctorate, Post-doctorate Degree
- 10) Other, please specify: _____

13. Please indicate, amongst the degree recognized by the Ministère de la Famille et des Aînés (MFA) to hire an educator, the one that you have completed and/or are in process of obtaining;

Completed / In Progress

13. 1 None
13. 2 Diploma of College Studies in education in child care services
13. 3 Diploma of College Studies in early childhood education
13. 4 Diploma of College Studies in daycare
13. 5 Diploma of College Studies in family practice
13. 6 Attestation of College Studies in education in child care services
OR early childhood education OR daycare OR family practice + 3 years of relevant experience
13. 7 Bachelor's Degree in preschool education
13. 8 Bachelor's Degree in preschool and elementary education OR early childhood and elementary education
13. 9 Bachelor's Degree in psychology with a focus in child development OR Child Study
13. 10 Bachelor's Degree in psychology, psychoeducation, orthopedagogy, adapted childhood OR special education.
13. 11 University Certificate in early childhood education + 3 years of relevant experience
13. 12 Other province (please specify province and program):
13. 13 Other country (please specify country and program):
13. 14 Other;
13. 15 Please specify;

14. In what region of Quebec did you complete your program? (drop down)

N/A

Abitibi-Témiscamingue

Bas-Saint-Laurent

Capitale Nationale

Centre du Québec

Chaudière-Appalaches

Côte-Nord

Eastern Townships/Estrie

Gaspésie/Îles-de-la-Madeleine

Lanaudière

Laurentides

Laval

Mauricie

Montréal

Montréal

Nord-du-Québec

Outaouais

Saguenay — Lac-Saint-Jean

15. What year did you obtain your diploma?

N/A

16. What language did you do your program in?

1) N/A

2) French

3) English

4) Other;

16.1 Please specify;

17. How many years of experience in Early Childhood Education (ECE) (equivalent to full time) did you have before beginning your ECE program?

1) N/A

2) No experience

3) 1-2 years

4) 3-5 years

5) 6-10 years

6) + 10 years

Career in Early Childhood Education

18. How many years (equivalent to full time) have you been an early childhood educator, with children younger than 5 years old, in a child care centre regulated by the Ministère de la Famille et des Aînés (MFA)?

- 1) 1-3 years
- 2) 4-7 years
- 3) 8-10 years
- 4) 11-15 years
- 5) 16-20 years
- 6) 21-25 years
- 7) 25 + years

19. Please indicate how strongly you agree or disagree with each of these statements

- 1) ***Strongly disagree***
- 2) ***Disagree***
- 3) ***Neither agree nor disagree***
- 4) ***Agree***
- 5) ***Strongly agree***

- 19. 1 I feel I have an input in the functioning of my classroom
- 19. 2 I feel that my knowledge is appreciated by my director/colleagues
- 19. 3 I feel that my suggestions are taken into consideration
- 19. 4 I feel well prepared to work as an early childhood educator
- 19. 5 I feel the strategies I learned in my training (e.g., behaviour guidance) work with the children
- 19. 6 In my program, I received enough training about; Child development
- 19.7 Children's social and emotional development
- 19. 8 Children's physical development
- 19.9 Children's language development
- 19. 10 Children's cognitive development
- 19. 11 Health and safety
- 19. 12 Activities
- 19. 13 Behaviour Guidance
- 19. 14 Curriculum and Planning
- 19. 15 Observation
- 19. 16 Children's Play
- 19. 17 Special Needs

20. In order of frequency, please rank the courses that you presently refer to in order to help you choose your play materials, from Never to Always.

- 1) *Never*
- 2) *Rarely*
- 3) *Sometimes*
- 4) *Very often*
- 5) *Always*

20.1 Activities

20.2 Curriculum and planning

20.3 Child Development

20.4 Observation

20.5 Health and safety

Current Position in Early Childhood Education

21. Are you a full time or part-time educator?

- 1) Full time
- 2) Part-time (e.g., substitute)

22. Do you have a classroom of your own?

- 1) Yes
- 2) No

23. What age group do you currently work with (i.e., the group you are with the majority of the time)?

- 1) All age groups
- 2) Infants (0-12 months)
- 3) Young Toddlers (12-24 months)
- 4) Older Toddlers (24-36 months)
- 5) Young Preschoolers (36-48 months)
- 6) Older Preschoolers (48-60 months)

24. How many children are there in your classroom per educator?

- 1) 1-4 children
- 2) 5-8 children
- 3) 8-12 children
- 4) 12 + children

25. What type of child care centre are you currently employed by?

- 1) Centre de la petite enfance in facilities (CPE) – Reduced contribution 7\$
- 2) Daycare in facilities- Reduced contribution 7\$
- 3) Home child care coordinated by the coordinator's office OR associated with a CPE – Reduced contribution 7\$
- 4) Centre de la petite enfance in facilities (CPE)
- 5) Daycare in facilities
- 6) Home child care coordinated by the coordinator's office OR associated with a CPE

25.1 Other- Please specify;

26. What main approach, program or curriculum do you use in your centre?

- 1) Jouer c'est magique/ High Scope
- 2) Montessori
- 3) Reggio Emilia/ Emergent Curriculum
- 4) Educational program developed by the Ministère de la Famille et des Aînés (MFA)

26.1 Other- Please specify;

27. What language is mostly spoken in your centre?

- French
- English
- French and English
- Others;

27.1 Please specify;

28. Your centre is situated in which region of Quebec?

Abitibi-Témiscamingue
Bas-Saint-Laurent
Capitale Nationale
Centre du Québec
Chaudière-Appalaches
Côte-Nord
Eastern Townships/Estrie
Gaspésie/Îles-de-la-Madeleine
Lanaudière
Laurentides
Laval
Mauricie
Montréal
Montréal
Nord-du-Québec
Outaouais
Saguenay — Lac-Saint-Jean

29. What is the number of inhabitants in the city where your centre is situated?

- 1) Less than 10 000
- 2) 10 000-100 000
- 3) 100 000-500 000
- 4) 500 000- 1 000 000
- 5) More than 1 000 000

30. Your input as an experienced educator and advocate is very valuable to us and can help ensure positive changes, progression, and advocacy in the field :-)

Do you have any comments about early childhood education and/or child care in Quebec?

31. Thank you very much for your participation in this study.

Findings of this study will be available to you through your associations, federations, CEGEP, University or by contacting us after October 2008.

If you are interested in receiving a document on Developmentally Appropriate Practice, please provide your email address and the document will be emailed to you. Please note that your contact information will in no way be linked to your completed survey and will only be used to forward the DAP document.

Annexe C : Questionnaire

La pratique adaptée au développement: Le développement de l'enfant et le matériel de jeu- Français.

N.B. Le format de ce document n'a pas été modifié, car les questions seront entrées dans le format « en ligne ».

Parce que la majorité des personnes qui travaillent dans les services de garde sont des femmes, ce document emploie le générique féminin.

1. Voulez-vous remplir ce questionnaire en français?

Would you like to complete this survey in English?

Français

English

ÊTES-VOUS ÉDUCATRICE DE LA PETITE ENFANCE?

Ce message vise à vous inviter à participer à l'étude intitulée *Pratique adaptée au développement : le développement de l'enfant et le matériel de jeu*, menée par Nathalie Di Francesco dans le cadre de sa thèse de doctorat, sous la supervision de Ruth Kane, à l'Université d'Ottawa. Cette étude a pour objectif de recueillir de l'information à propos de la pratique adaptée au développement chez les éducatrices de la petite enfance de l'ensemble de province du Québec, en lien le développement de l'enfant et le matériel de jeu. Vous devrez remplir un questionnaire en ligne, ce qui prendra entre 20 et 30 minutes.

On vous proposera plusieurs choix de réponses. Votre participation à cette étude pourrait contribuer à l'amélioration de la qualité des programmes postsecondaires (cégeps et universités) et au perfectionnement professionnel des éducatrices de la petite enfance.

Les résultats de cette étude pourraient offrir des renseignements sur la vision qu'ont les éducatrices du Québec de la pratique adaptée au développement (PAD) et sur leurs méthodes de travail. Ces renseignements permettront peut-être d'adapter les séances de perfectionnement professionnel et les programmes de formation, existants ou futurs. Les conseillers pédagogiques et les associations professionnelles pourront utiliser cette information pour adapter leurs séances aux besoins des éducatrices de l'ensemble de la province.

Dans le cadre de cette étude, on vous demandera de réfléchir à propos de votre métier d'éducatrice de la petite enfance, et de soumettre des renseignements pertinents, ainsi que vos connaissances à propos du développement des enfants. Rassurez-vous : il n'y a pas de bonne ou de mauvaise réponse, puisque cette étude vise simplement à recueillir des renseignements auprès des éducatrices de la petite enfance du Québec.

On ne vous demandera aucun renseignement personnel ou identifiable; vous participerez donc à l'étude de façon confidentielle et anonyme. Le contenu de vos réponses sera combiné à celles des autres participantes et ne sera pas utilisé ou analysé seul. On utilisera les données recueillies uniquement pour éclairer l'enseignement de la pratique au niveau postsecondaire et favoriser le perfectionnement professionnel. Les données recueillies

(c'est-à-dire les réponses électroniques aux questions) seront conservées de façon sécuritaire, dans l'ordinateur de la responsable de l'étude (auquel elle a accès de façon sécurisée dans son bureau), pendant au moins 5 ans et au plus 10 ans. Seule elle et sa directrice de thèse connaîtront le mot de passe et auront accès à ces fichiers. La directrice possédera également une copie des données.

Vous n'êtes pas obligée de participer à l'étude mais, si vous décidez de le faire, vous êtes libre de vous retirer en tout temps et/ou de refuser de répondre à certaines questions, sans que cela vous nuise en quoi que ce soit. Si vous décidez de cesser de répondre au questionnaire en cours de route, vous pouvez vous retirer en ne soumettant pas votre questionnaire.

De plus, si vous souhaitez recevoir un document sur la PAD, vous pouvez inscrire vos coordonnées dans la section appropriée à la fin du questionnaire. Veuillez noter que vos coordonnées ne seront pas liées à votre questionnaire une fois celui-ci rempli, et qu'on les utilisera uniquement pour vous faire parvenir le document.

Donc, si vous désirez participer à cette étude et acceptez de remplir le questionnaire suivant en ligne, veuillez sélectionner le bouton « Accepter ». Cela confirmera que vous avez lu et accepté les conditions de déroulement de l'étude, et que vous acceptez de participer à cette étude, menée par Nathalie Di Francesco, de la Faculté d'éducation de l'Université d'Ottawa, sous la supervision de M^{me} Ruth Kane.

Si vous avez des questions à propos de cette étude, vous pouvez communiquer avec Nathalie ou sa directrice de thèse. Il est recommandé d'imprimer cette page à titre de référence.

VOUS DEVEZ REMPLIR L'INTÉGRALITÉ DU QUESTIONNAIRE POUR LE SOUMETTRE À L'ÉTUDE.

Chercheuse

Nathalie Di Francesco, M.A.

Faculté d'éducation

Université d'Ottawa

Directrice de thèse

Ruth Kane

Faculté d'éducation

Université d'Ottawa

Si vous avez des questions à propos des aspects déontologiques de cette étude, vous pouvez vous adresser au Responsable de la déontologie en recherche, Université d'Ottawa,

2. AVEZ-VOUS 20 minutes à nous consacrer?

Est-ce que vous acceptez de participer à cette étude?

(VEUILLEZ NOTER que vous ne pourrez pas accéder à nouveau à votre questionnaire. Vous devez donc répondre à toutes les questions une fois que vous aurez commencé; vous devez également répondre à toutes les questions pour recevoir le document sur la DAP)

Lettre d'information

Oui

Non

Classe

3. Veuillez indiquer dans quelle mesure vous êtes d'accord ou en désaccord avec chacun de ces énoncés.

- 1) ***Pas du tout d'accord***
- 2) ***Pas d'accord***
- 3) ***Ni d'accord ni en désaccord***
- 4) ***D'accord***
- 5) ***Tout à fait d'accord***

3.1 Le matériel de jeu offert par les gros fabricants comme Fisher-Price/Mattel et Hasbro/Lego est adapté aux centres de la petite enfance.

3.2 Le matériel de jeu offert par les fabricants de jouets spécialisés/éducatifs comme Manhattan Toys et Jocus est adapté aux centres de la petite enfance.

3.3 Le critère le plus important pour le développement des enfants est :

La qualité du matériel de jeu

Le nombre de matériels de jeu

La variété de matériels de jeu

3.4 Il y a assez de matériel de jeu dans ma classe pour faire une rotation.

3.5 Le matériel de jeu se trouvant dans ma classe est adapté au développement des enfants.

3.6 Le matériel de jeu se trouvant dans ma classe est relativement neuf.

3.7 Le matériel de jeu se trouvant dans ma classe est de bonne qualité.

4. Veuillez indiquer la fréquence des actions énoncées ci-après.

- 1) ***Jamais***
- 2) ***Rarement***
- 3) ***Parfois***
- 4) ***Très souvent***
- 5) ***Toujours***

4.1 (4.4) Je me reporte au programme éducatif élaboré par le ministère de la Famille et des Aînés (MFA).

4.2 (4.5) Je base mes activités et ma planification sur le programme éducatif élaboré par le MFA.

4.3 (4.1) Mon rendement à titre d'éducatrice est évalué par ma directrice.

4.4 (4.2) Mon centre m'offre des possibilités de perfectionnement professionnel (p. ex., ateliers, conférences).

4.5 (4.3) Je trouve et exploite des possibilités de perfectionnement professionnel par moi-même (p. ex., ateliers, conférences).

4.6 (4.6) C'est moi qui choisis le matériel de jeu pour ma classe.

4.7 (4.10) C'est ma directrice qui choisit le matériel de jeu spécialement adapté à ma classe.

4.8 (4.11) Ce sont d'autres éducatrices qui choisissent le matériel de jeu pour ma classe.

4.9 (4.12) C'est la conseillère pédagogique qui choisit le matériel de jeu pour ma classe.

4.10 (4.7) J'ai mon mot à dire à propos du matériel de jeu qui est acheté.

4.11 (4.8) Le matériel de jeu est choisi et acheté en fonction du budget du centre.

4.12 (NONE) Le matériel de jeu est choisi et acheté en fonction des besoins.

4.13 (4.9) Le matériel de jeu destiné à ma classe est choisi/acheté en même temps que celui qui est destiné aux autres classes.

4.14 (4.13) Le matériel de jeu est sélectionné en fonction : Des besoins de l'ensemble du centre.

- 4. 15 (4.15) Des besoins de chaque classe.
- 4. 16 (4.16) Des besoins des enfants dans chaque classe.
- 4. 17 (4.17) De ce qui est populaire (p. ex., en raison de la publicité).
- 4. 18 (4.18) Des besoins des enfants (p. ex., basés sur des observations).
- 4. 19 (4.19) En collaboration avec les enfants – le choix dépend de leurs intérêts et des besoins liés à leur développement individuel.
- 4. 20 (4.20) Je m'appuie sur mes propres connaissances pour sélectionner le matériel de jeu.
- 4. 21 (4.21) Je m'inspire de renseignements provenant d'experts du domaine pour sélectionner le matériel de jeu.
- 4. 22 (4.22) Je m'inspire de renseignements provenant des fabricants de jouets pour sélectionner le matériel de jeu.
- 4. 23 (4.23) Je m'inspire de renseignements provenant de parents ou de personnes travaillant dans mon domaine (p. ex., des personnes d'expérience) pour sélectionner le matériel de jeu.
- 4. 24 (4.24) Je m'inspire de renseignements issus des séances de perfectionnement professionnel ou des cours auxquels j'ai assisté pour sélectionner le matériel de jeu.
- 4. 25 (4.25) Je peux trouver du matériel de jeu adapté aux enfants.
- 4. 26 (4.26) Le matériel de jeu qu'on trouve sur le marché est adapté aux besoins des enfants en matière de développement.
- 4. 27 (4.27) Le matériel de jeu qu'on trouve sur le marché est adapté aux centres d'intérêt des enfants.
- 4. 28 (4.28) Il y a au moins trois (3) versions identiques de chaque matériel de jeu.
- 4. 29 (4.29) Les éducatrices s'empruntent du matériel de jeu/le partagent d'une classe à l'autre afin de répondre aux intérêts et aux besoins des enfants.
- 4. 30 (4.30) Le matériel de jeu est accessible aux enfants (p. ex., ils ont accès à n'importe quel matériel et peuvent l'utiliser à n'importe quel moment).

Connaissance des étapes clés du développement de l'enfant et du matériel de jeu approprié

5. Chaque énoncé présente une habileté qu'un enfant pourrait posséder.

Pour chaque énoncé, indiquez à quel âge vous croyez que cet enfant peut afficher cette habileté (entre 12 et 60 mois) et quel serait le matériel de jeu le plus approprié pour stimuler cette habileté à cet âge-là?

Habiletés

Âge

Matériel de jeu

Ordre des réponses et valeur numérique

1. 12-24 mois
2. 24-36 mois
3. 36-48 mois
4. 48-60 mois

1. Boîte- surprise
2. Grosses perles en plastique entrelacées
3. Pictogramme
4. Plusieurs exemplaires de chaque matériel de jeu
5. Anneaux à empiler (5 à 10 pièces)
6. Blocs emboîtés les uns dans les autres
7. Tableau en feutre
8. Ensemble d'entretien ménager (fer et planche à repasser)
9. Ours de comptage de différentes couleurs
10. Matériel d'enfilage
11. Livres d'histoires interactifs
12. Déguisements
13. Blocs gradués (différentes tailles)
14. Matériel d'impression (lettres, formes, chiffres)
15. Ensemble de marionnettes
16. Jeu de bingo de groupe

5.1 (5.11) Découvre la cause et l'effet

12-24 mois

Boîte- surprise

5.2 (5.6) Barbouille avec des marqueurs en faisant des mouvements avec tout le bras

12-24 mois

Grosses perles en plastique entrelacées

5.3 (5.1) Utilise un discours holophrastique - un seul mot pour exprimer une idée

12-24 mois

Pictogramme

5.4 (5.12) Aime la compagnie, mais ne joue pas avec d'autres enfants

12-24 mois

Plusieurs exemplaires de chaque matériel de jeu

5.5 (5.7) Empile les objets par ordre de grandeur

24-36 mois

Anneaux à empiler (5 à 10 pièces)

5.6 (5.2) Serre les gros crayons avec son poing; barbouille énergiquement de grandes feuilles de papier

24-36 mois

Blocs emboîtés les uns dans les autres

5.7 (5.13) Dis des phrases de 3 à 4 mots; utilise une séquence de mots conventionnelle pour former des phrases plus complètes

24-36 mois

Tableau en feutre

5.8 (5.8) Regarde et imite les autres enfants qui jouent, mais se joint rarement à eux; préfère jouer seul

24-36 mois

Ensemble d'entretien ménager (fer et planche à repasser)

5.9 (5.3) Classe logiquement les objets en catégories basées sur une seule dimension (par exemple, la couleur, la forme ou la taille)

36-48 mois

Ours de comptage de différentes couleurs

5.10 (5.14) Tient un crayon entre les deux premiers doigts et le pouce (tripode) – et pas avec son poing, comme auparavant

36-48 mois

Matériel d'enfilage

5.11 (5.9) Répond à des questions à propos d'objets et d'événements familiers

36-48 mois

Livres d'histoires interactifs

5.12 (5.5) Observe les autres enfants en train de jouer; peut se joindre à eux pour une courte période; joue souvent parallèlement aux autres enfants

36-48 mois

Déguisements

5.13 (5.15) Comprend le concept du superlatif : « le plus grand », « le plus grand nombre », « le plus gros »

48-60 mois

Blocs gradués (différentes tailles)

5.14 (5.10) Reproduit certaines formes et lettres

48-60 mois

Matériel d'impression (lettres, formes, chiffres)

5.15 (5.4) Utilise les prépositions « sur », « dans » et « sous »

48-60 mois

Ensemble de marionnettes

5.16 (5.16) Joue avec les autres, participe à des activités de groupe

48-60 mois

Jeu de bingo de groupe

Pratique adaptée au développement : vision et méthodes

6. Veuillez indiquer le niveau d'importance que vous accordez à chacun des énoncés suivants à propos des programmes d'éducation relatifs à la petite enfance.

- 1) *Pas du tout important*
- 2) *Pas très important*
- 3) *Assez Important*
- 4) *Très Important*
- 5) *Extrêmement important*

6.1 Les examens de préparation et les examens finaux sont _____ pour l'évaluation des progrès réalisés par un enfant.

6.2 Il est _____ de s'appuyer sur l'observation pour planifier et évaluer le programme éducatif.

6.3 Il est _____ que les activités tiennent compte des intérêts de chaque enfant et des différences entre chacun (p. ex, les points forts et les besoins) selon leur niveau de développement.

6.4 Il est _____ que chaque matière soit enseignée séparément et à des périodes différentes.

6.5 Il est _____ que les interactions entre les éducatrices et les enfants aident ces derniers à développer leur estime d'eux-mêmes, et à avoir une vision positive de l'apprentissage.

6.6 Il est _____ d'utiliser une seule approche de l'enseignement de la lecture et de l'écriture.

6.7 Durant la petite enfance, il est _____ d'apprendre aux enfants à reconnaître les lettres et les mots.

6.8 Il est _____ que l'éducatrice aborde divers domaines d'apprentissage à l'aide de matériel concret (aire réservée à la rédaction, centre des sciences, coin des mathématiques, etc.).

6.9 Il est _____ que l'éducatrice offre aux enfants la possibilité de choisir et de créer leurs propres activités d'apprentissage (p. ex. : découper les formes de leur choix, décider eux-mêmes des étapes à suivre au cours d'une expérience, planifier une pièce de théâtre, faire de l'art et entreprendre des activités à l'ordinateur).

6.10 Il est _____ que les enfants travaillent la plupart du temps individuellement, assis à un bureau ou à une table.

6.11 Les cahiers d'exercices et/ou les modèles à colorier sont _____ dans ma classe.

6.12 Un programme structuré de lecture ou de préparation à la lecture est _____ pour les enfants.

6.13 Il est _____ que l'éducatrice parle à tout le groupe en même temps et que les enfants fassent les mêmes choses en même temps.

6.14 Il est _____ que l'éducatrice circule entre les groupes et les enfants, leur fasse des suggestions, leur pose des questions et les aide à entreprendre les activités avec le matériel dont ils disposent, et avec les autres enfants.

6.15 Il est _____ que l'éducatrice utilise des récompenses, des autocollants et/ou des étoiles pour que les enfants se prêtent à des activités qui ne les intéressent pas vraiment.

6.16 Il est _____ que les éducatrices punissent et/ou réprimandent régulièrement les enfants lorsqu'ils ne participent pas aux activités.

6.17 Il est _____ que les éducatrices allouent suffisamment de temps aux enfants pour qu'ils puissent jouer et participer à des projets en fonction de leurs besoins.

6.18 Il est _____ que les enfants écrivent en inventant leur propre orthographe.

6.19 Il est _____ que les enfants colorient à l'intérieur des formes pré-dessinées.

6.20 Il est _____ de lire des histoires aux enfants chaque jour, individuellement et/ou en groupe.

6.21 Il est _____ que les enfants puissent dicter des histoires aux éducatrices.

6.22 Il est _____ que les enfants voient et utilisent les supports imprimés fonctionnels (annuaire téléphonique, magazines) et les textes faisant partie de leur environnement (boîtes de céréales, sacs de croustilles).

6.23 Il est _____ d'offrir chaque jour aux enfants plusieurs occasions de développer des aptitudes sociales avec leurs camarades de classe (p. ex., coopérer, aider, parler).

6.24 Il est _____ que des personnes qui ne sont pas de la même origine ethnique ou du même âge ou n'ont pas les mêmes habiletés, ainsi que des personnes des deux sexes, jouent différents rôles dans les livres, les photos et le matériel utilisés en classe.

6.25 Il est _____ que les parents/tuteurs apportent leur contribution d'une façon qui leur convient, et que les éducatrices sollicitent les connaissances des parents à propos de leurs enfants et les intègrent aux évaluations, aux décisions de placement et à la planification.

6.26 Il est _____ d'utiliser des stratégies pour améliorer le comportement des élèves (p. ex., établissement de limites, résolution de problèmes et réorientation).

6.27 Il est _____ que les éducatrices intègrent la culture d'origine des élèves, ainsi que leur langue maternelle, au programme éducatif tout au long de l'année, et que les activités tiennent compte de la diversité culturelle des enfants.

6.28 Il est _____ que les éducatrices préservent un environnement calme.

6.29 Il est _____ d'enseigner avant tout aux enfants des aptitudes concrètes en utilisant la répétition et la récitation (p. ex., réciter l'alphabet).

6.30 Il est _____ de respecter le programme éducatif établi sans se laisser distraire par les intérêts des enfants ou les circonstances.

7. Veuillez indiquer la fréquence de chaque activité.

- 1) *Presque jamais (moins d'une fois par mois)*
- 2) *Rarement (une fois par mois)*
- 3) *Parfois (chaque semaine)*
- 4) *Régulièrement (2 à 4 fois par semaine)*
- 5) *Très souvent (quotidiennement)*

À quelle fréquence est-ce que les enfants de votre classe...

7.1 Construisent des structures avec des blocs

7.2 Choisissent parmi divers domaines d'apprentissage/centres d'intérêt et projets (p. ex., pièce de théâtre, art, musique, expériences scientifiques, etc.)

7.3 Exposent leurs œuvres dans la classe

7.4 Découvrent l'écriture en dessinant ou en copiant, avec leur propre orthographe

7.5 Jouent avec des jeux, des casse-têtes et des matériaux de construction (p. ex., jouets Tinker, blocs Bristle)

7.6 Découvrent des objets liés aux sciences (p. ex., animaux, plantes, roues, engrenages, etc.)

7.7 Chantent, écoutent de la musique et/ou bougent au son de la musique

7.8 Font des activités planifiées et dirigées par l'éducatrice (p. ex., se tenir en équilibre, courir, sauter)

7.9 Utilisent du matériel de jeu qu'il faut manipuler en suivant les directives de l'éducatrice (p. ex., panneau perforé, Lego et cubes Unifix)

7.10 Participent à des jeux commerciaux liés à la phonétique (p. ex., LeapFrog)

7.11 Travaillent en groupe sur des activités qui leur sont assignées en fonction de leurs aptitudes

7.12 Encerclent, soulignent et/ou marquent des éléments sur des feuilles de travail

- 7.13 Utilisent des « carte éclair » affichant l'alphabet, des mots à mémoriser de façon globale et/ou des formules mathématiques
- 7.14 Participent à des activités de calcul mental
- 7.15 Pratiquent leur écriture sur des lignes
- 7.16 Colorient, coupent et collent des formes pré-dessinées
- 7.17 Participent à des activités dirigées par l'éducatrice avec l'ensemble de la classe
- 7.18 Restent assis très longtemps pour écouter l'éducatrice, jusqu'à ce qu'ils deviennent impatients et agités
- 7.19 Ont l'occasion d'apprendre des choses sur les personnes ayant des besoins spéciaux (p. ex., une invitée spéciale ou le personnage d'un livre)
- 7.20 Reçoivent des récompenses pour avoir participé à des activités qui ne les tentaient pas vraiment
- 7.21 Voient dans la salle de classe des enfants partageant leur origine ethnique, leur culture et leur langue
- 7.22 Sont mis en « réflexion » (p. ex., en isolation, assis sur une chaise à l'écart des autres élèves, dans un coin ou envoyés à l'extérieur de la classe)
- 7.23 Ont des parents qui viennent lire des histoires ou expliquer leur métier ou leurs passe-temps à la classe
- 7.24 Participent à des jeux qu'ils ont choisis eux-mêmes et sont animés par l'éducatrice
- 7.25 Font du dessin, de la peinture ou de la sculpture sur argile, ou une autre forme d'art
- 7.26 Résolvent de vrais problèmes mathématiques à l'aide d'objets qui se trouvent dans la classe, mais sont utilisés dans d'autres domaines
- 7.27 Sont séparés de leurs amis dans le but de maintenir l'ordre dans la classe
- 7.28 Participent à des expériences qui les incitent clairement à valoriser leurs camarades de classe (p. ex., envoi d'une carte de souhaits à un camarade de classe qui est malade)

7.29 Travaillent avec du matériel qui a été modifié ou adapté à leurs besoins/leur groupe d'âge

7.30 Font des activités concrètes dans les domaines d'apprentissage appropriés (p. ex., écriture dans l'aire réservée à la rédaction, mathématiques dans le coin des mathématiques, activités scientifiques dans le centre des sciences, etc.)

Renseignements personnels

8. Sexe

- 1) Femme
- 2) Homme

9. Âge

- 1) 18-24
- 2) 25-29
- 3) 30-39
- 4) 40-49
- 5) 50-59
- 6) 60-65
- 7) 65 ans et +

10. Statistique Canada propose une définition multidimensionnelle de l'origine ethnique qui tient compte des aspects tels que l'ethnicité, l'origine ou l'ascendance, la culture, l'identité, la langue et la religion.

Selon cette définition, à quel groupe ethnique suivant vous identifiez-vous le plus?

- Blanche
- Asiatique de l'Est
- Asiatique du Sud
- Asiatique de l'Ouest
- Africaine
- Africaine du Sud
- Arabe
- Autochtone
- Autre (veuillez préciser) :

11. Langue (s) parlée (s)

- 11.1 Français
- 11.2 Anglais
- 11.3 Autres
- 11.4 Veuillez préciser :

Niveau d'études

12. Quel est le diplôme de plus haut niveau que vous avez obtenu, peu importe le domaine d'étude?

Études primaires

Diplôme d'études secondaires (DES)

Attestation d'études collégiales (AEC)

Certificat d'études collégiales (CCS)

Diplôme d'études collégiales (DEC)

Diplôme d'études universitaires (Certificat)

Baccalauréat

Maîtrise

Doctorat, postdoctorat

Autre (veuillez préciser) : _____

13. Veuillez indiquer, parmi les diplômes reconnus par le ministère de la Famille et des Aînés pour l'emploi d'éducatrice, celui que vous détenez et/ou que vous êtes sur le point d'obtenir

Obtenu/En cours

13.1 Aucun

13.2 Diplôme d'études collégiales en techniques d'éducation en services de garde

13.3 Diplôme d'études collégiales en techniques d'éducation de la petite enfance

13.4 Diplôme d'études collégiales en techniques de garderie

13.5 Diplôme d'études collégiales en techniques familiales

13.6 Attestation d'études collégiales en techniques d'éducation en services de garde OU de la petite enfance OU de garderie OU familiales + 3 ans d'expérience pertinente

13.7 Baccalauréat en éducation préscolaire

13.8 Baccalauréat en éducation préscolaire et en enseignement primaire OU de la petite enfance et enseignement primaire

13.9 Baccalauréat en psychologie spécialisé dans le développement de l'enfant OU les études de l'enfant

13.10 Baccalauréat en psychologie, psychoéducation, orthopédagogie, enfance inadaptée OU éducation de l'enfance en difficulté

13.11 Certificat universitaire en éducation de la petite enfance + 3 ans d'expérience pertinente

13.12 Autre province (veuillez préciser la province et le programme) :

13.13 Autre pays (veuillez préciser le pays et le programme) :

13.14 Autre 13.15 Veuillez préciser :

14. Dans quelle région du Québec avez-vous suivi votre programme? (menu déroulant)

S/O

Abitibi-Témiscamingue

Bas-Saint-Laurent

Capitale nationale

Centre du Québec

Chaudière-Appalaches

Côte-Nord

Canton de l'Est/Estrie

Gaspésie/Îles-de-la-Madeleine

Lanaudière

Laurentides

Laval

Mauricie

Montréal

Montréal

Nord-du-Québec

Outaouais

Saguenay — Lac-Saint-Jean

15. Quelle année avez-vous obtenu votre diplôme? (menu déroulant)

S/O

16. Dans quelle langue avez-vous suivi votre programme en éducation de la petite enfance?

S/O

Français

Anglais

Autre

16.1 Veuillez préciser :

17. Combien d'années d'expérience aviez-vous acquises en éducation de la petite enfance (équivalent temps plein) avant de commencer votre programme EPE?

S/O

Aucune expérience

1 ou 2 ans

3 à 5 ans

6 à 10 ans

+ de 10 ans

Carrière en éducation de la petite enfance

18. Depuis combien d'années (équivalent temps plein) êtes-vous éducatrice de la petite enfance, avec des enfants de moins de 5 ans, dans un centre régi par le ministère de la Famille et des Aînés (MFA)?

- 1) S/O
- 2) 1 à 3 ans
- 3) 4 à 7 ans
- 4) 8 à 10 ans
- 5) 11 à 15 ans
- 6) 16 à 20 ans
- 7) 21 à 25 ans
- 8) Plus de 25 ans

19. Veuillez indiquer dans quelle mesure vous êtes en accord ou en désaccord avec chacun des énoncés suivants.

- 1) *Pas du tout d'accord*
- 2) *Pas d'accord*
- 3) *Ni d'accord ni en désaccord*
- 4) *D'accord*
- 5) *Tout à fait d'accord*

19.1 Je sens que j'ai une influence sur le fonctionnement de ma classe.

19.2 Je sens que mes connaissances sont appréciées par ma directrice/collègues.

19.3 Je sens que mes suggestions sont prises en considération.

19.4 Je me sens bien préparée à travailler comme éducatrice de la petite enfance.

19.5 Les stratégies que j'ai découvertes durant ma formation (p. ex., gestion du comportement) fonctionnent avec les enfants.

19.6 Dans le cadre de mon programme, j'ai reçu une formation suffisante sur :
Le développement des enfants.

19.7 Le développement socio-affectif

19.8 Le développement physique

19.9 Le développement linguistique

19.10 Le développement cognitif

19.11 La santé et la sécurité

19.12 Les activités

19.13 La gestion du comportement

19.14 Le programme d'études et la planification

19.15 L'observation

19.16 Le jeu chez l'enfant

19.17 Les besoins particuliers

20. Par ordre de fréquence, veuillez classer les cours auxquels vous vous reportez actuellement pour choisir plus facilement votre matériel de jeu (Jamais à Toujours).

- 1) *Jamais*
- 2) *Rarement*
- 3) *Parfois*
- 4) *Très souvent*
- 5) *Toujours*

20.1 Activités

20.2 Programme d'études et planification

20.3 Développement de l'enfant

20.4 Observation

20.5 Santé et sécurité

Poste actuel en éducation de la petite enfance

21. Êtes-vous éducatrice à temps-plein ou à temps partiel?

- 1) Temps plein
- 2) Temps partiel (par exemple, suppléante)

22. Avez-vous votre propre classe?

- 1) Oui
- 2) Non

23. Avec quel groupe d'âge travaillez-vous actuellement (c'est-à-dire, la plupart du temps)?

- 1) Tous les groupes d'âges
- 2) Poupons (0 à 12 mois)
- 3) Tout-petits (jeunes) (12 à 24 mois)
- 4) Tout-petits (âgés) (24 à 36 mois)
- 5) Âge préscolaire (jeunes) (36 à 48 mois)
- 6) Âge préscolaire (âgés) (48 à 60 mois)

24. Combien d'enfants y a-t-il dans votre salle par éducatrice?

- 1) 1 à 4 enfants
- 2) 5 à 8 enfants
- 3) 8 à 12 enfants
- 4) 12 enfants et plus

25. Par quel type de centre êtes-vous actuellement employée?

- 1) Centre de la petite enfance (CPE) en établissement – Place à contribution réduite (7 \$)
- 2) Garderie en établissement – Place à contribution réduite (7 \$)
- 3) Service de garde en milieu familial coordonné par un bureau coordonnateur OU associé à un CPE – Place à contribution réduite (7 \$)
- 4) Centre de la petite enfance (CPE) en établissement
- 5) Garderie en établissement
- 6) Service de garde en milieu familial coordonné par un bureau coordonnateur OU associé à un CPE

25.1 Autre – Veuillez préciser :

26. Quelle approche ou quel programme ou programme éducatif principal utilisez-vous dans votre centre?

- 1) Jouer, c'est magique/High Scope
- 2) Montessori
- 3) Reggio Emilia/nouveau programme éducatif
- 4) Programme éducatif élaboré par le ministère de la Famille et des Aînés (MFA)

26.1 Autre (veuillez préciser) :

27. Quelle(s) langue(s) est(sont) le plus souvent parlée(s) dans votre centre?

Français
Anglais
Français et Anglais
Autre

27.1 Veuillez préciser :

28. Dans quelle région du Québec votre centre se trouve-t-il?

Abitibi-Témiscamingue
Bas-Saint-Laurent
Capitale nationale
Centre du Québec
Chaudière-Appalaches
Côte-Nord
Estrie
Gaspésie/Îles-de-la-Madeleine
Lanaudière
Laurentides
Laval
Mauricie
Montérégie
Montréal
Nord-du-Québec
Outaouais
Saguenay — Lac-Saint-Jean

29. Quel est le nombre d'habitants de la ville où votre centre est situé?

- 1) Moins de 10 000
- 2) 10 000 à 100 000
- 3) 100 000 à 500 000
- 4) 500 000 à 1 000 000
- 5) Plus de 1 000 000

30. Votre contribution en tant qu'éducatrice d'expérience et représentante de cette profession nous est très précieuse. Elle pourrait générer des changements positifs et faire progresser dans le bon sens l'éducation de la petite enfance.

Avez-vous des commentaires à propos de l'éducation de la petite enfance et/ou des garderies au Québec?

31. Merci beaucoup d'avoir participé à cette étude.

Les résultats de l'étude vous seront communiqués par votre association ou fédération, votre cégep ou votre université. Vous pouvez aussi nous contacter après octobre 2010.

Si vous souhaitez recevoir le document sur la Pratique adaptée au développement, veuillez inscrire votre adresse de courriel; le document vous sera envoyé.

Veuillez prendre note que vos coordonnées ne seront pas liées à votre questionnaire une fois que vous l'aurez rempli, et qu'on les utilisera uniquement pour vous faire parvenir le document en question.

**Appendix D: Knowledge and Developmentally Appropriate Practice Composite
Variables**

Knowledge Composite Variables

- 1) Knowledge of Developmental Milestones (KDM) = a summed score of all 16 developmental milestones related items.
- 2) Knowledge of Appropriate Play Material (KPM) = a summed score of all 16 appropriate play material items.
- 3) Knowledge (K) = a summed score of Composite Knowledge of Developmental Milestones and Composite Knowledge of Appropriate Play Material.
- 4) Knowledge of Developmental Milestones- 12-24 months old (KDM12) = a summed score of developmental milestones related to 12-24 months old (i.e., items 5.1a, 5.2a, 5.3a, 5.4a)
- 5) Knowledge of Appropriate Play Material- 12-24 months old (KPM12) = a summed score of appropriate play materials related to 12-24 months old (i.e., items 5.1p, 5.2p, 5.3p, 5.4p)
- 6) Knowledge of Developmental Milestones- 24-36 months old (KDM24) = a summed score of developmental milestones related to 24-36 months old (i.e., items 5.5a, 5.6a, 5.7a, 5.8a)
- 7) Knowledge of Appropriate Play Material- 24-36 months old (KPM24) = a summed score of appropriate play materials related to 24-36 months old (i.e., items 5.5p, 5.6p, 5.7p, 5.8p)
- 8) Knowledge of Developmental Milestones- 36-48 months old (KDM36) = a summed score of developmental milestones related to 36-48 months old (i.e., items 5.9a, 5.10a, 5.11a, 5.12a)
- 9) Knowledge of Appropriate Play Material- 36-48 months old (KPM36) = a summed score of appropriate play materials related to 36-48 months old (i.e., items 5.9p, 5.10p, 5.11p, 5.12p)
- 10) Knowledge of Developmental Milestones- 48-60 months old (KDM48) = a summed score of developmental milestones related to 48-60 months old (i.e., items 5.13a, 5.14a, 5.15a, 5.16a)
- 11) Knowledge of Appropriate Play Material- 48-60 months old (KPM48) = a summed score of appropriate play materials related to 48-60 months old (i.e., items 5.13p, 5.14p, 5.15p, 5.16p)
- 12) Knowledge of Developmental Milestones- cognitive domain (KDMC) = a summed score of developmental milestones related to cognitive domain (i.e., items 5.1a, 5.5a, 5.9a, 5.13a)
- 13) Knowledge of Appropriate Play Material- cognitive domain (KPMC) = a summed score of appropriate play materials related to cognitive domain (i.e., items 5.1p, 5.5p, 5.9p, 5.13p)
- 14) Knowledge of Developmental Milestones- physical domain (KDMP) = a summed score of developmental milestones related to physical domain (i.e., items 5.2a, 5.6a, 5.10a, 5.14a)
- 15) Knowledge of Appropriate Play Material- physical domain (KPMP) = a summed score of appropriate play materials related to physical domain (i.e., items 5.2p, 5.6p, 5.10p, 5.14p)
- 16) Knowledge of Developmental Milestones- language domain (KDML) = a summed score of developmental milestones related to language domain (i.e., items 5.3a, 5.7a, 5.11a, 5.15a)

- 17) Knowledge of Appropriate Play Material- language domain (KPML) = a summed score of appropriate play materials related to language domain (i.e., items 5.3p, 5.7p, 5.11p, 5.15p)
- 18) Knowledge of Developmental Milestones- social domain (KDMS) = a summed score of developmental milestones related to social domain (i.e., items 5.4a, 5.8a, 5.12a, 5.16a)
- 19) Knowledge of Appropriate Play Material - social domain (KPMS) = a summed score of appropriate play materials related to social domain (i.e., items 5.4p, 5.8p, 5.12p, 5.16p).
- 20) Knowledge 12-24 months old (K12) = a summed score of Knowledge of Developmental Milestones and Knowledge of Appropriate Play Material for 12-24 months old.
- 21) Knowledge 24-36 months old (K24) = a summed score of Knowledge of Developmental Milestones and Knowledge of Appropriate Play Material for 24-36 months old.
- 22) Knowledge 36-48 months old (K36) = a summed score of Knowledge of Developmental Milestones and Knowledge of Appropriate Play Material for 36-48 months old.
- 23) Knowledge 48-60 months old (K48) = a summed score of Knowledge of Developmental Milestones and Knowledge of Appropriate Play Material for 48-60 months old.
- 24) Knowledge Cognitive (KC) = a summed score of Knowledge of Developmental Milestones and Knowledge of Appropriate Play Material for Cognitive domain.
- 25) Knowledge Physical (KP) = a summed score of Knowledge of Developmental Milestones and Knowledge of Appropriate Play Material for Physical domain.
- 26) Knowledge Language (KL) = a summed score of Knowledge of Developmental Milestones and Knowledge of Appropriate Play Material for Language domain.
- 27) Knowledge Social (KS) = a summed score of Knowledge of Developmental Milestones and Knowledge of Appropriate Play Material for Social domain.

Developmentally Appropriate Practice Composite Variables

- 1) Beliefs of DAP (BDAP) = a summed score of all 30 Beliefs of DAP items.
- 2) Practices of DAP (PDAP) = a summed score of all 30 Practices of DAP items.
- 3) Developmentally Appropriate Practice (DAP) = a summed score of all 60 BDAP and PDAP items.