INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

Bell & Howell Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA

UMI®
800-521-0600

Correlates of affectionate and angry behaviour in day care educators of preschool-aged children

Davina Mill

A Thesis
in
The Department
of
Psychology

Presented in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy at
Concordia University
Montreal, Quebec, Canada

April, 1997

ABSTRACT

Correlates of affectionate and angry behaviour in day care educators of preschool-aged children

Davina Mill, Ph.D.
Concordia University, 1997

Research suggests that daycare children develop a network of attachment relationships both within and outside of the family and that all attachment relationships are important to the development of children's emotional and social development. In Canada today, approximately two-thirds of mothers with children younger than school age are in the paid labour force, and there are a large number of children being raised in what has been labeled "other-than-mother care" (Scarr, 1984). Based on the presumption that affectionate and angry behaviours on the part of daycare educators would have major implications for the development of the children for whom they care, the aim of the present investigation was to provide the groundwork for identifying what factors were associated with educator warmth and anger in daycare settings.

The conceptual framework for the present study draws upon the ecological models (Bronfenbrenner, 1986) that explicitly acknowledge the multiple levels of environmental influence on the caregiver's behaviour in order to study the correlates of these behaviours. Thus, several categories of variables were used to predict affectionate and angry caregiver behavior. These included educator characteristics, such as training and experience, personal resources such as well-being, self-esteem and social support, the work environment as measured by regulatable characteristics, wages and global quality, and the caregiver's perception of her work.

A multi-method, multi-respondent approach was employed, including researcher observations, educator self-report questionnaires, and objective data collected from directors and from Québec's Office des Services de Garde à l'Enfance. Seventy-eight female educators from 37 centres caring for preschool-aged children were observed in their classrooms for approximately two hours, using two valid and reliable time-sampling outcome measures of affection and anger. Characteristics of their work environments were also recorded. The educators then completed a

battery of questionnaires in which they provided information on their background characteristics, personal resources and perceptions of their professional roles and details about their work environments. Directors were asked to complete a brief questionnaire concerning characteristics of their centre and their own background.

The findings from this study suggest that different sets of variables are related to affection and anger. The work environment had a greater relation with caregiver's affectionate behaviour, whereas more internal, negative perceptions were linked to the expression of anger in the classroom. Improvements in the work environment might increase warm interactions directly by liberating the educator's resources in order that she can devote more of her energy towards being affectionate with the children. Changes in the work environment, however, may only decrease the educator's expressions of anger if she perceives herself as being supported in her job. Objective measures of the educator's work environment and self-report measures regarding her personal resources were both related to her satisfaction at the workplace.

Though training did not emerge *directly* as a significant factor in the display of affection or anger, (a) training did have an indirect relation with these behaviours by operating *through* the work environment, (b) educators who were less sufficiently trained were found to be more angry and less affectionate with the children when another risk factor was present, and (c) under adverse conditions, higher levels of affection and lower levels of anger were noted for higher levels of training, suggesting that training may serve as a protective factor from negative influences.

The present study marked the first empirical exploration designed to develop a model postulating factors that would be related specifically to affection and anger. While conclusions regarding causation cannot be stated, the present study was successful in highlighting some of the variables that have direct and indirect influences on the educator's affective behaviour and provides important directions for future studies, particularly with respect to the different pathways in which affection and anger may emerge and the use of ecological theory to guide research.

ACKNOWLEDGEMENTS

For me, this section of my dissertation is the most important as so many people have provided me with so much encouragement and insight that the quality of this work would have suffered without such influence. In many ways I saw parallels of my research findings to the process I experienced while developing, conducting, and writing my thesis, as the people in my work and home environments greatly influenced the production of this thesis.

I'd like to start by thanking Anna Beth Doyle and Dale Stack for their ability to ask me the kinds of questions and to provide the types of suggestions that helped further my development as a research scientist. I have also been very fortunate to have worked in a laboratory setting that fostered both academic excellence as well as supportive friendships. A special thanks goes out to Louise Balfour, Annick Buckholtz, Evelyn Schliecker, Nancy Bartlett and Lynn Kratzer for contributing their intellectual expertise and probably even more importantly, their emotional support and great sense of humour during my graduate years. (Here's to you, Babou!) I consider myself lucky to have been part of such a group and anticipate many more years in collaborating and supporting of each other, both professionally and personally.

Though not having worked directly on my thesis, there are a number of friends who have been in my life forever and who, with their continued love, support, and great advice, have helped to make me believe that almost anything is possible if I believe in myself. Shari, Vivian, and Laura: You are truly the best friends I could have ever hoped to have. Thank you for always being there, with terrific advice, an open ear, or a really great joke. BFs forever.

Though I didn't need your nimble fingers this time, thank you Aunty Esther for having loved me as if I were your own. To my brother, you told me I could do it - finally you are right about something! To my twin, you may be far away right now, but you're close in my heart. This past year, I also had the good fortune to meet Rose, who showed me, through example, how the marriage of wisdom and determination can be achieved.

I saved this last paragraph for three people who have guided and supported me in so many ways, it would not be possible to list how and still keep this thesis to under 300 pages. To Donna

White: Thank you for having been the best role model a doctoral student could have hoped for. Thank you for having supported me throughout all the stages of my Ph.D., and now for giving me an exciting future to look forward to. And last, to Mom and Dad: It's so hard to know what to say here. You gave me life, love and the foundation to be my full self. You have always been there for me, and I'm glad I make you proud - for you make me proud. I am one lucky daughter.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

LIST OF FIGURES

Correlates of affectionate and angry behaviour in day care educators of preschool-aged children

Overview

This investigation is an exploration of the factors related to daycare educators' affectionate and angry interactions with preschool-aged children. Over the past three decades, significant social, demographic, and economic changes have altered the constellation of the family. One of the most important demographic changes of the last fifty years has been the increased number of women in the paid labour force (Kamerman & Kahn, 1981). The dual-earner family is now the norm (Statistics Canada, 1992) and women are returning to work outside the home earlier in their children's lives (Hoffman, 1989). The most rapid increase in maternal employment rates are due to women with preschool children and infants (Hoffman, 1989). In Canada today, approximately two-thirds of mothers with children younger than school age are in the paid labour force, most of them on a full-time basis (Statistics Canada, 1992). This employment trend has been accompanied by an increase in the number of children being raised in what has been labeled "other-than-mother care" (Scarr, 1984). In 1991, Health and Welfare Canada estimated that 1,376,858 children below the age of 5 years would need some form of non-parental care because both parents (or one parent in a single-parent family) were in the labour force (Health and Welfare Canada, 1992).

Employed parents have several types of care available: relatives, sitters, family daycare, and group daycare. The type of care most extensively studied is group daycare, which is typically a centre-based, out-of-home placement for children, often involving trained educators and groups which range in size from 8 to 20 preschool children. This approach to child care is perhaps the least prototypical of mother care, as it does not involve care by a relative or single caregiver. Group daycare is the focus of the current work, and unless otherwise specified, it is group daycare that is being examined. As the literature referring to both the daycare setting and the home environment will be reviewed, for the sake of clarity, the terms educators or caregivers will

be used when referring to the person caring for the child at the daycare, and parent or mother will be used when referring to the home caretaker.

The radical changes in maternal employment and the use of group child care resulted in many investigations on whether these factors were related to child development. The first wave of research asked whether maternal employment was beneficial or detrimental for children. Based upon prevailing psychodynamic and attachment theories (Bowlby, 1951, 1969, 1973; Spitz, 1945), it was predicted that maternal employment would be harmful to children. These theories held that a single mother-child bond was essential to optimal child development. It was thought that such a bond could not be formed if mothers were away from their children for long periods of time. Furthermore, it was believed that children could not form multiple attachment bonds. Therefore, it was feared that separation from mothers might weaken mother-child attachment and thus engender negative effects similar to the "maternal deprivation" syndrome of institutionalized children.

Evidence to date suggests that maternal employment per se does not directly result in developmental problems for children (Alvarez, 1985; Baruch, Biener & Barnett, 1987; Hoffman, 1989; Silverstein, 1991) or impair mother-child attachment (Clarke-Stewart, 1989; Goossens & van IJzendoorn, 1990; Howes, Rodning, Galluzzo, & Meyers, 1988). Research studies have revealed that children can and do develop multiple attachment relationships (Howes et al., 1988; Lamb, 1980; Schaffer, 1977), and that an additional secure attachment to a caregiver other than the mother is related to higher levels of children's social competence with peers and adults (Howes et al., 1988). In addition, child care can serve as an intervention for children with disturbed mother-child relationships (Howes et al., 1988).

The second wave of research in this area focused upon the types of experiences that children have in non-maternal care. Empirical studies of the quality of child care are grounded in a framework that emphasizes predictive validity (Phillips, Howes, & Whitebook, 1992). Specifically, developmentalists define quality as those aspects of child care that are significantly associated with better outcomes for children, including cognitive, language and socioemotional

development (Hayes, Palmer & Zaslow, 1990; Phillips & Howes, 1987). Recent literature on assessing quality of care supports a multi measure approach that encompasses several dimensions of quality: (a) regulatable characteristics (e.g., staff-child ratios, staff training); (b) global measures; and (c) staff-child interactions. The study of regulatable characteristics and global measures of quality have contributed to the literature by emphasizing the relationship between quality and positive developmental outcomes. However, the caregiver's spontaneous interaction with the children is considered by many to be the critical factor in determining the quality of care and education received by the child (Kaplan & Conn, 1984; Scarr, Phillips, & McCartney, 1990; Snider & Fu, 1990). To underscore the importance of caregiver's spontaneous interaction, results from two studies using all three approaches to defining quality (i.e., regulatable, global, and interactions) have indicated that quality, as defined through interactive behaviour, best predicted child outcomes (Howes, Phillips, & Whitebook, 1992; Love, 1993).

Current attachment theory in the parenting literature points to the benefits of emotional warmth and the risks associated with anger in affecting a child's development (Belsky, 1993; Hyson & Cone, 1989; Sorce, Emde, Campos, & Klinnert, 1985; Termine & Izard, 1988). However, there are few studies that investigate caregiver attachment or affective responses to children. Given that the majority of children will spend some time in out-of-home care prior to formal schooling and, in light of the documented importance of the affective environment in early child development, the need to investigate the correlates of caregivers' affectionate and angry behaviours is warranted. The dangers of poor caregiver attachment can have life-long repercussions (e.g., Harris, Brown, & Bifulco, 1987), and it follows that involving children in environments outside the family that do not foster healthy attachment bonds would have detrimental effects on the children's growth.

There are at least two approaches that can be taken to investigate caregiver warmth and anger. First, these behaviors can be related to developmental indices in children in studies similar to those investigating parental affect. Secondly, it might be assumed, on the basis of the parental literature and attachment theory, that caregiver warmth fosters positive child outcomes and anger

fosters negative child outcomes. It could then be asked what factors facilitate caregiver warmth or caregiver anger. The aim of the present investigation was to provide information about factors related to caregiver warmth and anger.

The conceptual framework for the present study draws upon the ecological models (Bronfenbrenner, 1986) that explicitly acknowledge the multiple levels of environmental influence on the caregiver's behaviour in order to study the correlates of these behaviours. Thus, several categories of variables were used to predict warm and angry caregiver behavior. These included educator characteristics, such as training and experience, personal resources such as well-being, self-esteem and social support, the work environment as measured by regulatable characteristics, wages and global quality, and the caregiver's perception of her work.

Background

The structure for this section will be as follows: an overview of the multidimensional nature of daycare quality and its relationship to child development will first be presented. The importance of the quality of parent-child and educator-child interactions will be highlighted, emphasizing the effects of affectionate and angry interactions and attachment theory. Bronfenbrenner's ecological approach will be used as a guiding framework for deciding which factors are likely to influence the caregiver's behaviour and the existing literature examining these factors will be presented.

The Relationship of Daycare Quality with Child Outcome.

There are three approaches to measuring daycare quality: regulatable characteristics, global measures, and staff-child interactions. The relation between each dimension of quality and child outcome variables will be examined in the following section.

Regulatable quality characteristics.

In every province, child care centres are required to comply with regulations that establish a threshold of quality below which children's development is presumably compromised. Safety and health precautions figure prominently in these regulations, but they also include provisions regarding staff training, staff-child ratios, and maximum group sizes (Howe & Jacobs, 1995).

These variables are legislatively feasible because they are concrete, objective and easy to measure. For example, in Quebec, the maximum caregiver-child ratio in classes with preschoolers is 1 to 8, the maximum group size is 30 children per class, and one third of the centre's staff must have at least two years of early childhood education or a related degree. There are no requirements for directors, which is somewhat disconcerting, given that the director is typically responsible for hiring and supporting staff, supervising curriculum programming, monitoring educator-child interactions, and managing caregiver-parent relations (Howe & Jacobs, 1995).

Regional variations in regulations are abundant. For example, whereas Quebec's training requirements are more stringent than those of many provinces, other provinces have standards that directors must meet. As well, the maximum number of children permitted per class in Quebec far exceeds the national average and the recommended group size of 16-18 children according to the Canadian Child Care Federation (cited in Friendly, 1994). Despite these variations across the provinces and territories, the standards for regulating child care in Canada are generally higher and more uniform than in the United States (Child Care Resource and Research Unit, 1990; Phillips, Howes & Whitebook, 1991) which can sometimes render research comparisons difficult. Further complicating the picture is that while laws exist for the monitoring and enforcement of licensing standards across North America, non-compliance with regulations is common (Howes et al., 1992).

Some studies have failed to find significant associations between these regulatable features and children's development (Kagan & Newton, 1989; Kontos, 1991; Lambet al., 1988; Palmerus & Hagglund, 1991; Rosenthal, 1991; Whitebook et al., 1990), although when associations are found they point to lower ratios, smaller groups, and better trained staff as positive predictors of child development (Howes et al., 1988; Howes & Rubenstein, 1985; Howes & Stewart, 1987; Phillips, McCartney & Scarr, 1987; Ruopp, Travers, Glantz, & Coelen, 1979; Vandell & Powers, 1983; Whitebook et al., 1990). In studies that depart from this general pattern of findings, often the range of quality in the child care settings sampled was limited and might explain why significant associations between quality and child outcome were not found. For

example, children's social maturity was not predicted in a consistent manner from the quality of child care in Sweden (Lamb et al., 1988) where there is uniformly high quality of care. A similar nonsignificant finding emerged in a study by Kontos (1991) who noted a restricted quality range in her Pennsylvannia sample. It is likely that the quality-development link can be detected only when there is sufficient variation in the quality of the centres being studied.

When investigating regulatable characteristics, it has frequently been found that "good things go together" (Phillips & Howes, 1989). Centres that maintain adequate ratios and group sizes also tend to hire well- educated caregivers and pay relatively higher salaries (Whitebook et. al, 1990). In the words of Anderson, Nagle, Roberts and Smith (1981),"separation of these various dimensions of care quality may be difficult, if not impossible, as they seem to occur naturally in clusters" (p. 51). As a result, it is difficult to tease apart which aspects of regulations are most important to child development without formally manipulating these variables. Understandably, for ethical and practical reasons, very few studies in the field are experimental in nature. Only one study manipulated the child to educator ratio while holding other variables constant. Love (1993) found that by manipulating ratios between 1 to 8 and 1 to 10, observed ratio was a weak though significant predictor of children's involvement in activities; specifically, the higher the ratio, the more likely it was that children were less involved in centre activities. The fact that even such a small manipulation in ratios resulted in differences in behaviour underlines the importance of ratios in children's behaviours. Love did not, however, find significant relations between ratios and amount of crying, fighting, stress behaviours, or behaviour problems among the children.

In summary, regulatable quality variables have usually been found to be related to child outcomes. It is unclear whether child outcomes are affected as a direct result of the regulatable variables, or are due to other factors, such as the quality of the programming or the interactions between the children and their caregivers, given the interrelations between quality indices. Such caregiver behaviours have often been referred to as process variables. Process variables include the provision of activities for the children that are created in large part by the educator's programming knowledge, and the spontaneous and direct interactions the educator has with the

children (Howes et al., 1992; Rosenthal, 1991). These two dimensions of the caregiver's influence in child care have been found to be moderately correlated (Kontos, 1994; Rosenthal, 1991). Attempts to assess process variables have taken the form of measuring global quality indices or of directly assessing caregiver behavior. Global quality indices combine process variables such as the affective environment, the developmental appropriateness of the program and the physical environment in a series of items, while studies of caregiver behavior focus on positive and negative interactions between caregivers and children. A review of the relationship of global ratings and child development and educator behaviors and child behavior follows.

Global ratings of quality.

The most commonly used global measure of daycare quality is the Early Childhood Environment Rating Scale (ECERS; Harms & Clifford, 1980). The ECERS was designed to provide a comprehensive summary of the physical environment, the activities that children experience, and the quality of the staff-child interactions (Harms & Clifford, 1980). The psychometric properties of the ECERS are excellent, and it has consistently been related to regulatable features of the centre in the expected direction (Howes et al., 1992).

Empirical support demonstrating the association of global quality measures and child development has been well-documented (see Hayes et al., 1990, for a review of this literature). For example, McCartney, Scarr, Phillips, and Grajek (1985) found that lower scores on the ECERS predicted greater social maladjustment in the children. Phillips et al. (1987) found that the overall score of the ECERS predicted many of the measures of children's social development, even after family background, child-care experience, and the children's age were controlled. Schliecker, White and Jacobs (1991) found that children in higher quality centres as rated by the ECERS had better language skills than those children in lower quality centre. Longitudinal studies have also indicated that children who had attended centres that rated higher on the ECERS were more socially skilled and had less trouble adjusting to elementary school (Howes, 1990; Jacobs & White, 1994; Vandell, Henderson, & Wilson, 1988). As with regulatable features, studies of American daycare centres have reported wide variations in the quality of classroom

environments as measured by the ECERS (Howes et al., 1992). In contrast, in one study involving centres in an urban Canadian setting, very low and very high quality was not found (Schliecker et al., 1991). The implications of these findings is that even when the range of quality is somewhat restricted, as found in the Canadian study, significant relations between quality and child outcomes still can be found.

With respect to process variables, the ECERS emphasizes the quality of the educational program rather than the educator's characteristic style of interacting with the children. White and Rhodes (1986) noted that educator-child interaction and educator characteristics such as warmth, relaxed attitude, ability to speak softly but authoritatively, and ability to give positive physical contact are underrepresented in the scoring criteria of the ECERS scale. Another important limitation of the scale is that the interactions between caregivers and children are confounded with the physical features of the center. Because of the design of this scale, the caregivers' interactions with the children can be credited only when the physical aspects of the classroom are met. For example, in order to achieve a "good" score on the item pertaining to "using learning concepts", the educator must assist the child in developing concepts by talking to the child and asking questions to stimulate reasoning. However, if there are no games or materials available in this area, no credit for positive interactions can be given. Consequently, the interactions between the caregiver and the child are embedded and interactions are only credited once the criteria for physical characteristics of the classroom are met. It is clear that a center that scores dismally with respect to the physical environment is probably not a place that is likely to nourish child development. Nonetheless, although equipment and facilities do enrich the developmental environment, as does the programming of the activities, the caregiver's spontaneous interaction with the children is considered by many to be the critical factor in determining the quality of care and education received by the child (Kaplan & Conn, 1984; Love, 1993; McCartney et al., 1982; Scarr et al,, 1990; Snider & Fu, 1990). This position is consistent with new interpretations of attachment theory which stipulate that positive or warm attachments, be they to maternal figures or caregivers, are related to enhanced social and emotional development in children.

Quality of caregiver-child interactions.

Given that regulatable and global measures are not sufficient to evaluate the quality of educator-child interactions and that a good centre is essentially one in which caregivers interact positively and appropriately with the children, it is necessary to examine in greater detail the quality of educator-child interactions on child development.

Very few studies have evaluated the influence of the affective content of interactions on children's development. For example, though research has consistently suggested a relationship between high levels of family and marital discord and behavioural problems in children (Grych & Fincham, 1990), few studies have examined caregivers' expressions of anger in the daycare setting (Cummings & Vittemberga, 1991). In order to partially address this question, the literature on parent-child interactions and attachment theory becomes pertinent. In the following section, studies on familial or maternal warmth and harshness are reviewed, and the findings are used to suggest that there is a relationship between caregiver warmth and anger and child development outcomes.

Parent-child interactions model. Existing theory and data in the parenting literature underscore the importance of warmth and caring in fostering the child's development (Belsky, 1984; Belsky, 1993; Hyson & Cone, 1989; Sorce et al., 1985; Termine & Izard, 1988). In a review of the effects of early experience, Belsky (1981) described a large number of studies of parental influences on child functioning as "surprisingly consistent" in that they "point to the positive role played by attentive, warm, stimulating, and non-restrictive mothering in fostering development"(p.7). Positive maternal affect has been linked to better cognitive outcomes in preschool children (Estrada, Arsenio, Hess, & Holloway, 1987). Patterson, Cohn and Koa (1989) found that peer-rejected children whose mothers were low on warmth were rated by educators as having significantly more acting-out, shy-anxious, and learning problems than rejected children whose mothers were higher on warmth.

It is not surprising that children with harsh and critical parents are rated as more aggressive and less well-liked by peers (Adessky, 1996). Hartup (1983) notes that it is within the parent-child relationship that children begin to develop expectations and assumptions about interactions and relationships with other people. It is likely that children model the behaviour they see at home and act in similar ways with peers. In addition, using self-report data, Adessky (1996) also found that maternal harshness was positively related to stress and hassles. The finding that stress and hassles are positively related to harshness is consistent with the plethora of data on stress and parenting styles (Belsky, 1984; Crnic et al., 1990; Dumas, 1986; Patterson, 1983).

Based upon the parental literature, it could be suggested that teacher warmth is also related to positive developmental outcomes in children and the converse is true for harshness. Within the field of early childhood education, the importance of the affective environment of the daycare in the child's development has long been recognized. For example, the accreditation standards of the National Association for the Education of Young Children (National Academy of Early Childhood Programs, 1984) give prominence to affective considerations such as educator warmth and acceptance of negative feelings. The Association's published criteria for "developmentally appropriate practices" (Bredekamp, 1986) stress the central role of an emotionally positive environment. In general, early childhood programs have maintained a firm belief in the power of the educator's input into the environment to induce emotionally positive states in children, to channel their emotion into learning, and to stimulate emotionally healthy development (Hyson & Cone, 1989).

Attachment models. In addition to the parent-child studies reviewed, a conceptual framework that has been helpful in understanding the needs and development of the young child is attachment theory. Attachment theory was based on the idea that infants need someone consistently present with whom to interact and to develop a trusting relationship. Several early interpretations of attachment theory have not been supported, but the idea that warm relationships with caregivers would be related to positive development and harsh, angry interactions would be related to negative outcomes forms the basis of modern interpretations.

The original hypotheses about attachment assumed that infants required one primary attachment figure who had to be the child's biological mother. Consequently, many researchers and theorists objected to the use of day care. In their classic observations on "maternal deprivation", Spitz (1945) and Bowlby (1951) claimed that institutionalized care resulted in infants who were intellectually and socially retarded due to lack of mothering. It was argued that these children had no opportunity to form healthy attachments to their mothers, which in turn led to compromised developmental outcomes. These alarming interpretations led to more systematic work on maternal attachment, bonding, and deprivation. Re-analyses and reinterpretations of the evidence (Yarrow, 1961) yielded the argument that it was not lack of mothering per se, but rather lack of sensory and affective stimulation that led to such detrimental outcomes for the orphans. However, lack of an available attachment figure was presumed to disrupt the development of a secure attachment relationship and to affect subsequent socio-emotional development. Recently, the use of day care has provided opportunities for further extending and challenging traditional attachment theory. Research has revealed that children can and do develop multiple attachment relationships with fathers (Lamb, 1980), with other family members and close friends of the family (Schaffer, 1977), and with caregivers (Howes et al., 1988). Contrary to expectations, Goossens and vanIJzendoorn (1990) found that professional caregivers did not have more insecure attachment relationships with the infants in their care than did parents, and concluded that infant-caregiver attachments appear to be independent of infant-mother or infant-father attachments. Moreover, Howes et al. (1988) found that even if the parental attachment was secure, an additional secure attachment to a caregiver was related to higher levels of the children's social competence with peers and adults. Researchers have further suggested that child care can serve as an intervention for children with disturbed mother-child relationships (Howes et al., 1988) or for children who come from low-income homes where they are considered at-risk for poor intellectual and social development (McCartney et al., 1985). The general consensus by the research community appears to be that a secure relationship between child and caregiver combined

with insecure attachments at home predicts a better socio-emotional adaptation than having no secure attachment relationship at all (Clarke-Stewart, 1989).

In summary, research suggests that daycare children may develop a network of attachment relationships both within and outside of the family and that all attachment relationships are important to the development of children's emotional and social development. Despite this high regard for the affective environment of the classroom and the beneficial effects of positive attachments in the day care setting, few studies have actually examined the components of positive attachment such as affection between child and caregiver (Holloway & Reichhart-Erickson, 1987; Howes et al., 1992; Love, 1993), or the negative effects on the child due to educators' expressions of anger in the classroom (Cummings, Iannotti, & Zahn-Waxler,1985; Cummings, Zahn-Waxler & Radke-Yarrow, 1981). Using the subscales of the Caregiver Interaction Scale (Arnett, 1989), Love (1993) found that children were observed to be less stressed (e.g., exhibiting less nail biting, stuttering, fighting, and complaining of feeling ill) when caregivers were more attentive and encouraging, and more stressed when caregivers were harsh, critical, and detached; the latter style was also associated with children being more uninvolved in classroom activities. Holloway and Reichhart-Erickson (1987) found that in centres where educators manifested a more positive teaching style, characterized by being respectful, engaging, responsive, and democratic, children gave more prosocial responses to social problem solving tasks. In another study (Howes et al., 1992), children classified as securely attached were more likely than children classified as avoidant or ambivalent to be enrolled in classrooms rated as good or very good in appropriate caregiving. However, there were no significant associations between attachment classification of the children and ratios or class size, nor was there an association between attachment status and developmentally appropriate activities, which included ratings of the materials available, and scheduling and types of activities offered. These results support the notion that affectively-laden interactions with the children are more influential to the child's security of attachment than are regulatable features or types of activities or materials provided to the children. Based on the results of a path analysis of these data, Howes et al. further suggested

that regulatable features do not have a direct effect on children's social competence with peers. Instead, the effect of regulatory features on social competence with peers was mediated by the caregiver's style of relating to and disciplining the children, lending further support to the special importance caregiver-child interactions have on child development.

In summary, contemporary developmental research has recognized the vast heterogeneity of child care quality. Regulatable indices, such as ratio, class size and training, as well as global indices, which tend to emphasize the quality of the physical environment, classroom activities and materials, have often been found to be related to child outcome, especially in the cognitive and academic domains. While there is support for the notion that caregiver-child interactions might be the most important indicator of a quality centre and appear to have a direct and unique role in fostering the children's socio-emotional development, this area of research has received little attention. Literature on parent-child interactions indicates that parent or maternal warmth is related to positive socio-emotional developmental indices, while parent or maternal harshness and anger are related to negative socio-emotional child development indices. Both modern attachment theory and the few studies on caregiver attachment, warmth and anger that have been reported support the idea that similar relationships between caregiver warmth and anger and children's adjustment are present. The fact that caregiver affective interactions with children are important seems inconsistent with the fact that the research literature in this area is sparse. In the next section, two reasons for the scarcity of research on caregiver-child interactions as a dimension of quality care are delineated: the problem of defining caregiver affection and anger, and the emphasis on academic or cognitive outcomes rather than socio-emotional outcomes.

The problem in defining caregiver affection and anger. Few studies have examined the caregiver-child relationship with respect to child outcome, and even fewer studies have specifically targeted affectionate or angry interactions between the child and the caregiver. It should be noted that the assessment of caregiver behavior requires interpretation and judgment by experts. This factor may help explain why so little research has been conducted with caregiver observations relative to regulatable or global measures. For example, assessing caregiver warmth

would require both a clear behavioral definition of the construct of warmth as well as observers who are trained to judge this behaviour.

A particularly troublesome issue is defining the constructs. For example, little consistency exists in the conceptualization and operationalization of affection, although there has been a wide range of opinions as to what constitutes affection. Smith (1982; cited in Botkin & Twardosz, 1988) defined affection as a feeling one has for another who one perceives as a source of support, encouragement, and physical contact. Schutz (1979) limited his definition of affection to feelings that are almost exclusively met within a dyadic interaction. Behavioural constructs have also been used to define affection. Lovaas, Schaefer, and Simmons (1965) confined their definition to hugging and kissing. Acker, Acker, and Pearson (1973) defined physical behaviours such as hugging and patting, and verbal behaviours, such as complimenting, to measure affection. Walters, Pearce, and Dahms (1957) maintained their definition of affection so broad it basically included any non-aggressive interaction as affectionate. While the tone of the educator's voice during interactions (based on observers' opinion as measured on a 7-point Likert scale) is important, Twardosz, Cunningham, Weddle, Sollie and Shreve (1987) found low reliabilities when measuring this aspect of the affectionate interaction. Similar inconsistencies when defining anger have also been reported (Cummings & Vittemberga, 1991).

One problem with previous research is that studies have not used a measurement system specifically designed to record different types of affectionate or angry behaviour separately from other social interactions. The generalizability or insufficient sensitivity of the measures make it difficult to integrate information on this topic. This lack of precision makes it hard to know what is being measured, and the psychometric properties of particular measures are rarely reported. To address these limitations, the present study used two measurement systems specifically designed to measure educators' affectionate and angry interactions with children in the classroom. Twardosz, Schwartz, Fox, and Cunningham (1979) developed and validated a reliable behavioural observation measure designed to assess educators' affectionate interactions with the children, and Cummings and Vittemberga (1991) did the same for angry behaviour in a day care

setting. Both measures are observational time-sampling techniques, and their respective definitions for affection and anger are reasonable and clear.

Another obstacle to investigating caregiver warmth and anger has been the emphasis on cognitive outcomes of group care. Parents' demands for more academic content have led some practitioners to justify the value of early childhood programs primarily in terms of cognitive rather than socio-emotional benefits (Hyson & Cone, 1989), undermining the importance of the caregiver-child affective relationship. Studies exploring the interaction between children and the day care provider have found a link between "educational" interactions and outcome. For example, with respect to verbal stimulation provided in the classroom, researchers have reported that children's social skills (Clarke-Stewart, 1987) and language skills (McCartney et al., 1985) were better in day care centres when the providers talked and read to the children more often.

A consensus may not be achieved regarding the definitions of affection or anger, however the need remains to describe early childhood educators' naturalistic expressions of affection and anger to preschool children in day care centres (Hyson & Cone, 1989; Twardosz et al., 1987). This need is based upon the central and unique role played by the caregiver as an attachment figure and facilitator of development. As well, it is not possible to understand the factors that promote caregiver warmth and anger unless these terms can be objectively defined and studied in the centre. Studies that have examined these interactions have found links between affectionate and angry caregiving and child outcomes in the expected direction. The present study provides the groundwork for identifying what factors are associated with educator warmth and anger in day care settings. In order to identify such factors, an ecological model (Bronfenbrenner, 1986) will be adopted and four contextual levels will be examined, including educator background characteristics, personal resources, job perceptions and environmental characteristics of day care centres. The next section will review the literature associating educator behaviour with variables from these four contexts.

Correlates of Caregiver Behaviour

A major question in psychology has been: "What should the primary units of analysis be in psychological theories aimed at describing, predicting, and explaining human behaviour?" (McFall & McDonel, 1986, p.201). Is it the quality of the environment, the characteristics of the person, or an interaction between the two? Most research on day care educators' behaviour has focused on the influence of the situations in which they find themselves. Of the work that has emphasized personal characteristics of the educator, the vast majority of research has examined the impact of training on caregiving practices, with very little emphasis on other aspects of the person.

The conceptual framework for the present study draws upon the ecological model of research (Bronfenbrenner, 1986) that explicitly acknowledges the multiple levels of environmental influence on individual behaviour and development. Individuals are placed at the core of several concentric layers of influence, ranging from their immediate environments (microsystem) to the ideologies that prevail in their culture (macrosystem). These multiple contextual layers jointly conspire to influence individual outcomes. Accordingly, the focus of research may extend beyond the environments that individuals inhabit in their daily lives in order to better appreciate how other levels of environmental influence affect these settings and, ultimately, how their influence reaches the individual.

Ecological models are well-suited to the study of caregiver behaviour in the day care setting. The caregiver brings with her a history of experiences and personal development and is contextually embedded in the day care centre as well as from her own personal life outside of work (microsystem model). It is expected that her experiences at home and on the job will be mutually influential (mesosystem model), as will other aspects of the community, such as the characteristics of the families using the centre and the educator's personal social support network (exosystem model). These systems are, in turn, affected by the broader economic and political structures - cultural attitudes and social policies concerning child care - which influence how social institutions are organized in our society (macrosystem model). In the present study,

relations among four domains were explored. The specific domains that were related to the quality of the educators' interactions with the children as presented in Table 1 are: (a) the educator's background characteristics (e.g., training, age, SES); (b) personal resources the educator possesses that are related more to her home than work environment (e.g., self-esteem, stress and social support); (c) work place characteristics (e.g., structural and global quality, wages, turnover rates); and (d) job perceptions (e.g., perceptions of burnout, job satisfaction and supervisor support). Subsequent sections present the available empirical literature examining these areas of influence and why they might contribute to the educator's behaviour with the children.

Background characteristics: Age, SES, experience, and training.

It has been argued that affection and responsiveness as aspects of a caregiver's interaction with children may reflect personal characteristics of the educator herself (Lamb & Easterbrooks, 1981 cited in Melhuish, Mooney, Martin, & Lloyd, 1990). Unfortunately, little research exists on this topic, especially in centre-based day care settings, and when it does exist, the findings are equivocal. With the possible exception of training, no other personal variable has been found to relate to the educator's behaviour in the day care setting. Two recent studies (Pence & Goelman, 1991; Rosenthal, 1991), one conducted in Canada and the other in Israel, examined personal characteristics of the family day care provider and did not find significant differences in background variables of the educator with respect to the quality of the caregiving. In the Vancouver Family Day Care Research Project, educators from high and low quality family day cares did not differ significantly with regard to basic personal and socioeconomic variables such as age, marital status, household income, home ownership, length of time at current address, presence of health problems, or country of birth (Pence & Goelman, 1991). Similar nonsignificant results were found in a study in Israel comparing the caregiver's background (e.g., age and marital status) with respect to her interactions with infants and toddlers (Rosenthal, 1991).

Table 1

Listing of Variables in Background Characteristics, Personal Resources, Work Environment, and Job Perception.

Background Characteristics	Personal Resources	Work Environment	Job Perception
training	well-being	ECERS	burnout
experience	self-esteem	Adult needs-ECERS subscale	job reward
SES	home hassles	Materials- ECERS subscale	job concerns
place of birth	perceived stress	ratio	satisfaction
age	social support	turnover	supervisor support
		wages	
		class size	
		% on subsidies	
		profit status	

In many fields of work, it is reasonable to expect that more experience on the job often translates into better job performance. However, of those studies examining years of experience and educator caregiving practices, nearly all report either a nonsignificant or a negative relationship (Phillips et al., 1987; Rosenthal, 1991; Ruopp et al., 1979). One reason for these findings might have to do with an association between years of experience and burnout. It is possible that more years of experience in what many consider a stressful job with little chance of advancement might lead to greater burnout, which would likely impair the educator's ability to perform well at her job. In fact, Fuqua and Couture (1986) found that more years of experience was related to greater feelings of emotional exhaustion, and they suggested that additional experience may have differential effects on burnout depending on the profession.

A common view among parents and some child care advocates is that affection or anger are personality characteristics difficult to modify through education or training. However, while the evidence relating the caregiver's behaviour in the day care to her age, marital status, SES, and years of experience is sparse and only weak or nonsignificant findings have emerged, investigators have frequently found a strong relation between training and caregiving practices. Caregiving practices include her ability to educate, discipline and socialize the children in her care. Research examining relations between caregiver background and the caregiving practices has found that the best predictor of quality caregiving in preschool classrooms is years of education (Berk, 1985; Kontos, 1994; Howes et al., 1992). Berk (1985) found that educators with at least two years of college showed more educator direction and three times as many behaviours aimed at increasing children's verbal skills than did educators with only a high school diploma. There were no differences, however, between groups in the amount of praise, affection or comfort given to the child (Berk, 1985), suggesting that years of training may be less influential on affective interactions than on other caregiver behaviours.

Ruopp et al. (1979) argued that *specialized* training in early childhood education was more influential in determining the quality of the day care environment and its effects on children than the overall level of education. Caregivers with specialized training in early childhood education

were observed to show a higher frequency of positive social interaction with the children, exhibiting more praising, comforting, responding, questioning, and instructing than caregivers without such training. In turn, the children under the care of the trained caregivers performed better on two standardized school achievement tests, and were observed to be more cooperative, to pay greater attention to tasks and activities, and to be less isolated. These findings suggest that it may be necessary to take into account whether the educator is specifically trained in the field of early childhood.

Given that the studies linking education with behaviour of the educator are all correlational, the fact remains that better educated caregivers may differ from those with less education on other factors such as financial status, social support, self-esteem or intelligence, factors that might influence their caregiving practices independent of their training. It is possible that caregivers with certain personal characteristics both seek out training and tend to interact with children in more supportive or stimulating ways. Two intervention studies, however, found that training itself led to improvement in caretaking (Arnett, 1989; Kaplan & Conn, 1984), and that the differences in caregiver behaviours were not simply an artifact of self-selection factors. Arnett (1989) studied child-rearing practices in day care centres in Bermuda and found that training, even relatively brief training such as a few key courses, was related to less punitiveness and detachment, and to more warmth and enthusiasm in the caregiver's interactions with children. Moreover, pre-existing differences were unlikely, as the control educators were on a waiting list to take the training. As such, all the caregivers studied had training or plans to obtain training.

Kaplan and Conn (1984) also found that brief training sessions (20 hours of professional training) seemed to have a greater effect on caregivers' nurturing behaviours than on their direct teaching efforts in the areas of cognitive and language development. They suggested that nurturing behaviours may be more amenable to change after short-term training than the more verbal, teaching functions of the caregiver role. With respect to the effects of extensive training, findings from a correlational study conducted by Whitebook et al. (1990) suggest that high levels of training may be required to influence the educator's ability to provide developmentally

appropriate activities. These findings indicate that an educator with no training would have more difficulty providing such activities, while she may be able to be warm and sensitive in her caregiving.

Not all studies have found a significant association with level of training and more sensitive and caring behaviour on the part of the educator. In two separate studies, caregiver qualifications did not influence praising of the children (Kontos, 1991) nor the quality of family day care (Kontos, 1994). However, a small sample size and a restricted range of training in this relatively small, rural Pennsylvanian town, where choice of care was limited, may account for these nonsignificant findings. In a Canadian study, a non-significant relation was found between caregiver education and positive interactions with the children (Pence & Goelman, 1991). It may be that the educators in this British Columbia sample were over-educated (unlike in the United States or Bermuda, where much lower levels of education are common), thus restricting the range of education.

In summary, few studies have examined caregiver background characteristics such as age, experience, and SES. Of those that have, few significant findings have emerged. On the other hand, some studies support a positive relation between training and quality, although the effects of training are difficult to separate from other factors such as social support, wages, or intelligence. Finally, while researchers consistently agree that more training is required to improve developmentally appropriate caregiving practices, there is less evidence to support the contention that training is essential for sensitive and affectionate caregiving. Nonetheless, based on current findings, training does seem to be related to caregiver behaviour.

Personal Resources: Self-esteem, well-being, perceived stress and social support.

An area that has received even less attention than training or experience on caregiver behaviour in the day care setting is how the psychological well-being of the educator influences her caregiving behaviour. In the parenting literature, Belsky (1984, 1993) has noted a consistent link between negative emotional states and traits (e.g., low self-esteem, poor social support) with

rejecting, detached and unresponsive parenting. Belsky (1993) also establishes links between warm maternal-child interactions and good adjustment and favorable peer relations in children.

Researchers have suggested a number of personal variables that might influence caregiver warmth and anger. For example, Maslach (1982) discussed the role of self-esteem and Kontos (1991) suggested stress outside the work environment as a variable in caregiver affectionate behaviour. Stuart and Pepper (1991) found that amongst educators running licensed family day cares, those who were the warmest, most responsible and best organized were rated as more dominant or assertive, more inquiring or intellectually curious, and less conventional and interested in traditional female activities than those who provided lower quality care. Because information is lacking, the current study included measures of self-esteem, well-being, home hassles, perceived stress, and social support as potential correlates of affectionate and angry behaviours in child caregivers.

Work environment.

Day care research has focused almost exclusively on the impact of the day care environment on child development. Child care is not just a learning and nurturing environment for children; it is also a work environment for adults. Good quality care requires an environment that values adults as well as children (Whitebook, Howes, & Phillips, 1990). Common sense dictates that an educator who feels respected and well treated will be more likely to perform her job better. The importance of studying the caregiver's behaviour within the context of her work environment is underscored in the following sections.

In general, in child care of higher quality (i.e., structural and global), children experience a warmer emotional climate, more frequent personal interactions with caregivers, and more interactions with caregivers that involve sharing of information (Zaslow, 1991). One of the key findings of the National Study of Centre Care carried out nearly two decades ago (Ruopp et al., 1979) was that regulatable features of the child care centres (notably smaller group size and caregiver training specific to child development) were significantly associated with observed caregiver behaviour. In the recent National Child Care Staffing Study (Phillips et al., 1992),

these same features of care were linked with the emotional tone of interactions. Day care centres that met recommendations for group size, caregiver-child ratio, and caregiver training in the 1980 Federal Interagency Day Care Requirements had educators who were observed to be "more sensitive, less harsh, and engaged in more appropriate caregiving with children, thus suggesting that standards may contribute to the creation of a warm and caring child care environment " (Whitebook et al., 1989, p.14). Howes et al., (1992) found that when a ratio of 9 or more children for each educator were in the preschool class, or when there were 20 or more children in the class as a whole, more than 50% of the children were in classrooms rated as inadequate in caregiving, which was measured using items from the ECERS pertaining to caregiver-child interactions, supervision and discipline.

The need to keep the ratio and group size low is further highlighted by research on caregiver's affectionate behaviour conducted by Botkin and Twardosz (1988), who argued that since educators express more affection to individual children than to groups of children, it is important to allow for one-to-one interactions in early childhood programs. Child care educators who care for relatively small groups of children are better able to give each child individualized attention and to attend to their social bids (Hayes et al., 1990; Kontos, 1994). As the number of children increases, more behaviour management is necessary (Howes & Rubenstein, 1985; Ruopp et al., 1979). Caregiving not only becomes more harsh or detached, but even if the educator can continue providing good care, it will be harder for her to attend to each child individually. Efforts to try to attend to all the children will also likely engender earlier burnout if she begins to feel overwhelmed and unable to provide sensitive care. It is possible, however, that the ratio of boys to girls in the classroom might influence the caregiver's behaviour, because girls tend to be easier to manage (Block, 1982). In support of this position, Botkin and Twardosz (1988) observed that girls received more affection than boys in a day care setting. Finally, Whitebook et al. (1990) found that educators in centres where the physical environment and materials were appropriate for children (as measured by the ECERS) were more likely to respond sensitively and appropriately to the children in their care. In sum, examining the structural

dimensions that comprise higher quality care helps identify the circumstances in which positive interactions are more likely to occur, and while interactions cannot be regulated through government policy, some structural dimensions, which may be related to positive caregiving, can be regulated.

The vast majority of the research done on care quality is naturalistic, documenting spontaneously occurring variation in quality and its correlates. There are few intervention studies in this field. One exception is a study conducted by Pines and Maslach (1980), who described an early case study highlighting how manipulation of the centre's structural features can influence the behaviours of the both the children and the educators. The centre that was targeted for intervention was initially lacking in structure. The children were free to roam from room to room, and while the overall ratio of children to educators was good, there was no effort to subdivide the centre into smaller groupings. The centre was characterized as chaotic and noisy, with children often crying or fighting with each other. While educators in this centre reportedly liked the children and tended to be affectionate with them, they were totally exhausted at the end of the work day and reported taking regular vacations in which they engaged in solitary activities, saying they needed to get away from people, especially children. They felt they were subjected to tremendous stress and had a growing sense of burnout and dissatisfaction. Six months after increasing the structure in this chaotic centre (i.e., having specific groupings of children and a defined space that the educators could consider their own), educators reported that there was less misbehaviour and aimless wandering by the children, there was less abuse of the toys, and play was more constructive. The impact on the educators was also apparent. The educators felt less emotionally drained, more in control, more personally responsible for the environment, and consequently reported experiencing a greater sense of personal accomplishment. The educators reported being better able to get to know each child and to attend to each child's personal needs. They even reported improved educator-educator relations, with more open communication and emotional support. This before-and-after design helped to clarify the beneficial effects of restructuring the centre on the children's behaviour as well as on the caregivers' perceptions of

their professional roles. Unfortunately, this study did not examine the effects of manipulating structural features of the centre and observing their impact on the caregivers' interactions with the children.

Not all studies have found differences in caregiving practices as a function of class size or ratios. No significant difference was found in a small sample of educators in Pennsylvania, where the range of quality was restricted (Kontos, 1991), nor was ratio related to self-reported burnout among highly educated caregivers (Fuqua & Couture, 1986), suggesting that quality range and educator training may affect the relation between structural variables and educator behaviour. Another study in which the relationship between structural variables and educator behaviour did not emerge was conducted in Sweden where there is less variability in quality, as most centres tend to be of high quality (Palmerus & Hagglund, 1991). Interestingly, a lower adult-child ratio was related to an increase in child-oriented activities and close interaction with the children only if the staff agreed on goals and methods in their work. Rather than focusing exclusively on the number of children in the class, these authors suggested examining the staff teams' manner of organizing their work, their motivation to cooperate and their sense of unity. Thus, staff relations are important mediators for child outcomes when other working conditions vary.

The focus has, thus far, been on how characteristics of the centres are related to the educator's behaviour. Another way the environment of a day care centre can be affected, which may have an influence on the caregivers behaviour, is through the types of families who use the services of the centre. As day care research has progressed, a pattern of findings has recurred suggesting that care quality and family characteristics are not independent of one another. Rather, both socioeconomic status (SES) of the families using the centre and variables reflective of psychological stress within the family show significant relations with quality of care. The rationale is that parents who are educated, financially secure and who have good social support are expected to have the informational, financial and emotional resources needed to make better care choices for their children. For example, Howes and Stewart (1987) reported that parents

who were most stressed and most restrictive in child-rearing attitudes selected the lowest quality child-care arrangements for their children. In contrast, nurturing and supportive parents in this study were more likely to find and stay with higher quality care. In another study (Howes et al., 1988), parents of children who were categorized as insecurely attached selected child care arrangements with poorer ratios, again reflecting the apparent interaction between family characteristics and child care selection. However, these studies were based on correlational data, and other factors may explain why poorer functioning families are found more often in lower quality daycare centres. For example, families with fewer financial resources may live in economically disadvantaged areas, where good quality day care is unavailable. Also, families experiencing more stress may have difficulty accessing better quality centres.

Family income plays an especially telling role in family life because the resources and services required for sustaining the health and well-being of family members, and the development of the child are often dependent on the family's financial resources (Bronfenbrenner, 1986). It is not surprising then that a number of studies have reported that families of relatively higher socioeconomic status receive higher quality child care. For example, Anderson et al. (1981) found that better educated parents had children in centres that were evaluated to be of better physical quality, and studies conducted in Canada have reported that children in families with fewer resources (in terms of parental education, occupation, income, and marital status) were over-represented in low-quality child care settings (Goelman & Pence, 1987; Pence & Goelman, 1991). While these and other studies (e.g., Holloway & Reichart-Erikson, 1988; Kontos & Feine, 1987) have found a similar positive relationship between SES and care quality, the National Child Care Staffing Study (Whitebook et al., 1989) reported a curvilinear relationship, with middle income families placing their children in lower quality centres than either low- or high-income families. Kontos (1991) also found that more children on subsidies than children from middle class families were found in higher quality care. It appears that unless families have high-income or are subsidized (i.e., low income) they cannot afford to attend the very high quality centres, as higher fees usually translate to higher quality, a finding that may be more true in the

United States (Whitebook et al. 1990), than in Canada given the differences in quality range and availability of subsidized care.

This more complex view, where the family and child care environments are seen as exerting mutual influences on each other, and complementary influences on child development, has engendered a new set of studies and applications. Close collaboration between parents and educators has been encouraged because of its presumed positive impact on children's development. However, while the issue of family characteristics being related to child care quality has typically been viewed with respect to child development, a separate question can be directed at whether educators are influenced by the types of families they deal with daily. Just as the development of children in child care cannot be studied without examining family influences, the same may hold true for studying caregivers' attitudes and behaviours in the centre. A few studies have focused attention on parent-caregiver interactions. Endsley and Minish (1989) found that for some parents, child care was a source of adult support and friendship. Pence and Goelman (1991) found that the amount of conversation with the parent beyond simple 'hellos' and 'goodbyes' was significantly greater for higher quality caregivers in family day cares than for lower quality family caregivers. Kontos and Wells (1986) found that frequent and close communication exchanges, beyond basic discussions on children's behaviour at the centre distinguished caregivers' evaluations of parents held in high- versus low-esteem. These researchers further suggested that the more personal communication pattern of the group held in higher esteem may have produced a halo effect that attenuated negative staff reactions usually associated with such things as failure to pick up a sick child promptly. Kontos (1989) also found that differential caregiver attitudes towards parents were related to reliable differences in those parents' characteristics, attitudes and behaviours. That is, mothers perceived by the educators as doing a poor job of parenting were more likely to be single, less communicative with caregivers, hold more old fashioned child-rearing values, and have more problems with centre rules. To date, no study has examined whether family characteristics, such as SES, are related to the educator's provision of care.

This research on factors within the work place underscores the need to examine contexts which the educator herself does not inhabit, but which likely have an impact on her daily functioning. It is also expected that general societal values, such as cultural attitudes towards child care and maternal employment, influence the educator in her ability to do her job effectively. In North America, there exists a widespread public attitude toward day care work as a low status job deserving little economic compensation and requiring little training (Berk, 1985). This attitude is reflected in the salaries most educators receive. According to the Canadian Day Care Advocacy and Canadian Child Day Care Federation (CDCA, 1993), the average hourly wage in child care in Canada is $9.60 ($9.30 in Quebec, which translates to approximately $18,500 per year). In another report surveying 276 educators in Quebec, Tessier (1991) found that 58.5% of educators made less than $14,999 in 1989. This wage does not reflect the educator's level of education relative to other professions in Canada. Almost seven out of ten staff working in early childhood education have a post-secondary certificate, diploma, or degree; in the Canadian employed labour force, only four out of 10 workers have this level of education. The average wage for a warehouse worker, a job requiring less skill, less education, and less experience, is 58% higher than that for a day care educator. As of 1991, compared with employees in the service sector as a whole, child care wages were 20% lower (CDCA, 1993).

In most occupations, wages increase with length of time on the job and with age. In child care, just like other professions, 25- to 34-year-olds earn more than 20- to 24-year-olds. In the general labour force, however, 35- to 44-year-olds earn 20% more then 25- to 34-year-olds, whereas in child care, once an educator reaches the age of 35, her wages remain fixed. Wages become stable just at the time when, traditionally, adults are incurring additional expenses related to, for example, having their own children and buying their own homes. This may account for the high number of child care staff in the 20- to 29-year old group, and the reduction in staff over the age of 30. Whitebook et al. (1990) have noted that the best consistent predictor of turnover rates is the caregiver's salary. In Canada, turnover rates were about one-third higher for centres paying wages below the provincial median than for those above the median (CDCA, 1993).

There are negative effects of turnover in most industries, and in child care this is especially true. Consistency of caregiving is absolutely critical to the children's sense of security and the quality of the care they receive. For example, Howes (1993) found that children who experienced frequent losses of their primary caregivers became increasingly aggressive. Overall turnover as reported by the directors participating in the United States National Child Care Staffing study (Whitebook et al., 1989) was estimated at 41%, and a direct staff measure of turnover found a 37% rate in just six months. It was further noted that today's child care staff are leaving their jobs at a rate almost 3 times higher than in the late 1970's. In Canada, turnover rates tend to be lower (CDCA, 1993). The average rate reported by directors over a one year period was 26% (direct follow-up of educators 6 months later found a 20% turnover rate). Quebec turnover rates are slightly higher at 32%, with only 16% of this group on leave of absence (e.g., maternity leaves). These rates are comparable to turnover rates for workers in education or related fields. While it may be that turnover rates for educators are not greater than for the general population in Canada, when juxtaposed with evidence that stability of care is an important ingredient of quality care for young children, the level of turnover is cause for concern. High staff turnover has been associated with poor quality centres as measured by the ECERS and less responsive educator behaviour (Kontos & Feine, 1987; Phillips & Howes, 1987).

One variable that has been linked to turnover rates is a centre's profit status or auspice. Lower wages and higher turnover rates are more likely to occur in for-profit than in non-profit centres (Pence & Goelman, 1987; Whitebook et al. 1990). In Quebec, the hourly wage in non-profit centres was $10.04 and for-profit centres, $7.36 (CDCA, 1993). The percent of budget devoted to staff wages in Quebec for nonprofit and profit centres was 76.4% and 51.9%, respectively. Based on multiple regression analyses, the only significant predictor of hourly wage in Quebec was centre auspice. Centre-related variables that did not emerge as significant predictors of hourly wage included: centre location, size, budget -to-wages ratio, fees and union status. Caregiver-related variables not predictive of wages included educator age, number of years working at the centre, position, and educational attainment.

Most studies have found a significant relation between auspice, day care quality and caregiving practices. Pence and Goelman (1987) found educators in for-profit centres, as compared to those in non-profit centres, were more harsh, less sensitive, less appropriate, less trained, less experienced, and less satisfied with their jobs and with their supervisor's support. The director of for-profit centres also had less training, ratios were poorer, materials were lacking, and the adult needs of the educator were poorly met. Other studies have reported similar findings (Kagan & Newton, 1989; Phillips et al., 1992). In sum, salaries of child care workers are dismally low, especially in light of their education levels, and staff turnover rates are high. These problems are typically associated with for-profit centre status and are related to lower overall centre quality, poorer child outcomes, and less sensitive, and more harsh caregiving practices.

Job perceptions: burnout, job satisfaction, and supervisor support.

Anecdotal evidence suggests that low morale, job stress and burnout are common in child care educators and tend to fuel turnover (Hyson, 1982; Kontos & Stremmel, 1987; Whitebook et al., 1982). In contrast, the same literature suggests that these educators find the day-to-day challenges of their work highly satisfying. Both research and common sense suggest that people who are satisfied with their jobs and feel they have the support of those they work for are more productive and committed workers. But does this hold true for child care educators? Examining how the educator's perception of her job is related to her caring behaviour is the goal of the final section of this review.

The caregiver's self-reflective attitudes towards her professional role, such as how satisfying, rewarding or stressful she views her job, will likely influence how she responds to the conditions of her work. How the child care educator experiences her workplace must certainly have an effect on the interactions she will have with other employees of the centre, with the parents who use the centre, and perhaps most importantly, it will affect how caring and attentive she is with the children on a daily basis. At present, there is scant evidence that working conditions contribute significantly to job satisfaction and commitment to child care as a

profession, even though intuition suggests that these variables ought to be related. Additional research is needed to examine the experience of caregiving and how it is related to the context in which caregivers work.

Early work by Maslach and Pines (1977) showed that the caregiver's experiences in the day care setting determine to a great degree the extent of her job satisfaction and burnout. Job satisfaction has been defined as a positive emotional state reflecting an affective response to the job situation (Brooke, Russell & Price, 1988). Burnout has been defined as a syndrome of emotional exhaustion and cynicism that can occur among individuals who spend much of their time working closely with other people (Pines & Maslach, 1980). Given the nature of their job, it is likely that day care workers might find working with children both a source of satisfaction and stress. Kontos and Stremmel (1988) found that even though staff members reported contact with the children as a major source of satisfaction with their work, a quarter of them also mentioned dealing with the children as something they liked least about their jobs.

It is reasonable to suspect that both burnout and job satisfaction would have an influence on caregiver behaviour. Research has found that emotional fatigue had a detrimental effect on an individual's physical health and job performance (Maslach & Pines, 1977), that job overload was negatively related to educators' likelihood of praising and nurturing the children in their care (Kontos, 1991), and that educators who reported being more satisfied with their jobs used age-appropriate instruction more often and encouraged children's efforts and verbal skill development (Berk, 1985). Berk also reported that educators who reported low levels of satisfaction were more likely to disparage children and set overly restrictive limits on their activities. Approval and nurturing behaviours of the educators were positively related to self-reports of extrinsic job satisfaction (e.g., pay, working conditions), but not with intrinsic job satisfaction (e.g., feeling a sense of personal accomplishment). Kontos and Stremmel (1988) found that working conditions were not related to job satisfaction, however in their study there was a very limited range with the quality and job satisfaction measures. It appears that staff in general were more or less uniformly satisfied with their jobs and the authors suggested using multidimensional measures of job

satisfaction. Research is only just beginning to identify the ways in which center working conditions and economic benefits can make a substantial difference in how caregivers feel about their job, and subsequently, how they behave.

Maslach (1982) noted that "although personality does play some part in burnout, the bulk of evidence is consistent with the view that burnout is best understood (and modified) in terms of situational sources of job-related, interpersonal stress" (p.9). For example, Pines and Maslach (1980) found that larger ratios, longer working hours, less structured hours, and less frequent staff meetings which enabled staff to socialize informally, provide each other with support, advice and goal clarification, and to exert some influence on the policies of the centre, were related to higher levels of burnout. Dion (1988) found similar variables related to burnout in a large sample of Quebec educators. In his model, used to explain burnout in educators, organizational factors included: role ambiguity, role conflict, hours at work, class size, absence of breaks and feedback, centralization of authority, absence of decision-making power, and physical features of the environment (such as the physical layout, lighting, air circulation, heating and noise, adult chairs, and a separate adult room). In the same study, he also found that correlations between burnout and personal characteristics of the educators were small, concurring with Maslach and Pines that it is the environmental conditions of the centre, more than the individual personality characteristics of the educator, that influence burnout.

Supervisor support has been implicated in affecting educators' stress and burnout levels (Maslach & Pines, 1977). A supportive supervisor could influence perceptions of role stress and overload by changing the objective levels of these variables or by suggesting coping mechanisms. Miller, Ellis, Zook, and Lyles (1990) have viewed supervisor support in terms of the critical role served by effective communication in reducing or moderating the experience of burnout. Specifically, effective communication helps to influence the educators' attitudes and enhances their sense of control in the workplace. Some studies have found that staff members who report having more input and involvement in decision-making appear more satisfied with their jobs (Whitebook et al., 1982) and report lower levels of burnout (Fuqua & Couture, 1986).

Unfortunately, little attention has been devoted to the direct effects of supervision on the quality of care the educator provides. In a sample of educators with limited education working with toddlers, caregivers who received more frequent supervision tended to have more positive interactions with the children (Rosenthal, 1991). In another study also involving family day care providers, it was found that when disciplining the children, supervised educators were more likely to use reasoning, explanation of rules, praise for compliance and appropriate time-out procedures in order to encourage the development of the children's self-control as compared to their unsupervised counterparts (Pepper & Stuart, 1992). In another sample which included very well trained educators with at least six years experience, little relationship was found between supervisory style and caregivers' behaviours in child care centres (Montgomery & Seefeldt, 1986). As there was little or no turnover reported in this latter sample, they concluded that no relationship exists between supervisory style and staff turnover. This low turnover rate is very rare in most centres, thus questioning the representativeness of the centre itself. While little research has examined the role of the supervisor on educators' behaviour, it may be that more educated caregivers are less influenced by the contact they have with their supervisors, whereas educators with less training may benefit more by such input.

In conclusion, despite over three decades of day care research, the latter half of which has emphasized the importance of day care quality on child development, there is still much that is unknown about the factors that are related to the caregiver's interactions with the children for whom she cares. Either the evidence is lacking, or it is by no means uniform. Because the way the caregiver behaves with the children may arise as a result of interactional processes involving characteristics of the educators, characteristics of those families who use the day care services, and the multiple contexts in which they are embedded, the search for univariate differences will likely yield sporadic findings. Under some conditions a certain factor may prove invaluable; under other conditions it will not. As Bronfenbrenner (1979) so astutely noted, in the ecology of human development, interactions between variables are likely to be more informative, underscoring the complexity of the issues and the need for contextual and multidomain

approaches. Given the importance of affection and anger on child development, there is a paucity of studies that have emphasized the quality of caregiver - child interactions and examined multivariate effects in relation to each other. Accordingly, one of the the goals of the present study was to examine these factors individually and also in combination with each other in relation to affectionate and angry interactions in a day care setting, employing multi-method approaches to data collection. Most significantly, the use of direct observation in the present study adds to and extends previous work which has largely relied on self-report and interview methods.

Statement of Purpose

Based on the presumption that affectionate and angry behaviours on the part of day care educators will have major implications for the development of the children for whom they care, the present study was designed to explore the variables related to affectionate and angry interactions between educators and preschooled children. The research is important because it will contribute to determining what factors might create more satisfied and effective caregivers.

Some strengths of the present study were the inclusion of numerous domains in a single design and the comprehensive approach to data collection using observation, interviews and standardized measures. The variables used in this study by no means exhausted the possible influencing factors of interactions between educators and children. However, important variables were incorporated that have been shown to be relevant in the parenting and day care literature with respect to quality care. The primary analyses of interest were divided into two sections: one dealing with affection and the other with anger, organized largely around the four domains proposed, namely: caregiver background characteristics, personal resources, work environment, and job perceptions.

Another strength of the present study was the inclusion of well-validated and reliable measures specifically designed to assess interactions between caregivers and children. The methodological diversity of this study coupled with valid and reliable observational outcome measures afforded the unique opportunity to study the influences on affectionate and angry behaviour in a broader, more comprehensive manner.

The present research focused exclusively on women educators as they constitute the vast majority of educators in this field (CDCA, 1993; Whitebook et al., 1990). Only educators working with preschool-aged children were included in the study because responses of educators working with children at different ages, and thus at different levels of development, were expected to be different (Fuqua & Couture, 1990; Whitebook, 1984).

There were five primary objectives to the present research.

(1) The first goal was to describe characteristics of the centres and the classrooms selected for the study on a number of different measures (e.g., various quality indices, parent fees, profit-status, number of children on subsidies, and centre size). As a replication of previous work that had found that family characteristics were not independent of centre quality, a measure used to represent the SES of families using the centres was correlated with the ECERS score. It was expected that more disadvantaged families would be enrolled in lower quality centres. Finally, given that profit-status had also been found to relate to centre characteristics and educator behaviour, a MANOVA was performed on centre auspice and a number of centre and educator characteristics. It was expected that non-profit centres would be of higher quality than for-profit centres.

(2) The second objective was to explore the affectionate environment in the classroom. First, a description of the number of overall affectionate behaviours is presented, followed by a break down of the number of affectionate acts occurring for each subscale of the Affection Scale (viz., smiling, affectionate words, affectionate passive touch and affectionate active touch). These analyses were also conducted on the recipient of the affection, that is, comparing affectionate behaviours for individuals compared to groups, and for boys compared to girls. Based on past literature, it was expected that more affection would be displayed to individuals and girls (Botkin & Twardosz, 1988).

Finally, relationships of affectionate interactions with background characteristics, personal resources, work environment and job perceptions were examined in a comprehensive manner. Most of this work was exploratory in nature. While some empirical work had previously been

done examining educator behaviour, training, and work environment, in many other areas there is a lack of knowledge with regard to many other variables related to caregiver-child interactions. For example, better caregiving practices tend to be related to aspects of the work environment such as regulatable and global quality variables, wages, and turnover rates (Pines & Maslach, 1980; Ruopp et al., 1979; Whitebook et al., 1990). Based on these findings, it was expected that affectionate caregiving would increase as the quality of the work environment increased. Similarly, despite some inconsistencies in the literature (Kontos, 1991; Pence & Goelman, 1987) most research suggested that educators with specialized training in early childhood education provided better services (Arnett, 1989; Berk 1985; Howes et al., 1992; Kaplan & Conn, 1984; Kontos, 1994). However, research was lacking in terms of the educator's affectionate behaviour with the children. Based on trends in the literature for other educator behaviours, it was expected that increases in affection would emerge as the educator's training in early childhood education increased.

Given the dearth of information with regard to the remaining variables, hypotheses were mostly exploratory and based more on informal observations rather than on available research. While theory and common sense dictates that educators with greater personal resources (e.g., more social support, higher self-esteem, less perceived stress or hassles) and those who perceive their job more positively (e.g., higher job satisfaction, less burnout, more support from their supervisor) would likely be more affectionate, there was insufficient information to make strong predictions. While previous studies (Pence & Goelman, 1991; Rosenthal, 1991) have not found relations between the *family* day care educator's marital status, age, place of birth or SES and the quality of her caregiving practices, these relations have not been examined in *centre* day cares.

Two approaches were used to analyze the data. The first compared educators with high affection scores to educators with lower affectionate scores based on a median split, to determine whether they differed across the domains. A second approach using four multivariate analyses was used, preserving the continuous nature of the affectionate scores as the dependent variable and including the variables in each domain as the predictor variables.

(3) The third objective was to explore expressions of anger by the educator in the classroom. First, a description of the number of angry behaviours was presented, followed by a break down of the number of acts occurring for each subscale of the Anger Scale. It was expected that few angry behaviours would occur in the presence of the observers. Affection and anger were expected to be negatively correlated, however it had yet to be determined if the same variables would be related to both of these educator behaviours. Again, using a MANOVA because of intradomain variable correlations, these two groups (angry vs not-angry) were compared to see if they differed across the domains.

(4) In order to better understand the ecology of the educator's world in relation to her affectionate and angry behaviour with the children, and as a precursor to developing a preliminary model, the fourth goal of this study was to examine interrelations among the four domains of the model. For example, would certain educator characteristics be predictive of the type of centre in which the educator would be working? It was expected that educators with more training would more likely be found in centres of higher quality. It was also expected that the work environment would relate to the educator's perception of her job. The way an educator perceived her home life was also expected to be related to her satisfaction on the job. Multivariate relationships between the domains were explored using canonical correlation techniques in preparation for developing a final model of the determinants of caregiver's affectionate and angry behaviour.

Based on these findings and the findings relating variables from the four domains to affectionate and angry behaviour, as well as the findings emerging from the previous section, a preliminary model was developed to describe the caregiver's interactions with children in terms of her personal and professional characteristics and her immediate and extended work environment. A path analysis was contraindicated given the insufficient number of participants, thus the benefits of this model were to assist in future research as a means of outlining the variables deemed most relevant in influencing caregiver-child interactions.

(5) To better understand the conditions under which affectionate interactions were most likely to occur and angry interactions least likely to occur, a final goal of the current investigation

was to examine one variable in conjunction with other variables. What determines whether affectionate or angry behaviours will occur may be based on a balance between assets, risks and protective factors. Patterson et al. (1989) defined assets as events, conditions or experiences that predispose to adaptive outcomes; risk factors were defined as events, conditions or experiences that predispose to maladaptive outcomes and protective factors were events, conditions or experiences that attenuate or even eliminate ill effects of risk factors. In the present work, it was hypothesized that when assets were lacking, and when risk factors outweighed protective factors, the probability of affectionate behaviour occurring would be greatly reduced and conversely, the probability of angry behaviours occurring would be increased.

Borrowing an approach used in the NICHD Early Child Research Network (1996), the aim of the present study was to test two hypotheses about how potentially influential factors in caregiver affectionate and angry behaviour might operate. The first hypothesis was the "dual-risk hypothesis", which stipulated that conditions considered risky, yet not necessarily directly related to the educator's behaviour, would put the educator at risk when combined with a second risky condition. The second hypothesis was the "compensatory hypothesis". This hypothesis stipulated that when risk factors were present, then certain conditions could stabilize the educator's experience and thereby foster more affectionate behaviour. In the present study, exploring all combinations of variables was unreasonable. However, the training the educator receives has often been the target of investigation in other areas of daycare research and has major implications for policy making. It was expected that this variable would emerge as influential in affecting the educator's behaviour. It was also expected that high levels of training would be considered an asset to the educator, especially when compensating for other risk factors. Furthermore, under conditions of dual risk (i.e., low training with another risk factor present), the educator's level of affection was expected to be the lowest and her angry interactions with the children to be the highest.

Method

Day Care Centres and Participants

Participants were selected from a list of licensed day care centres published by the Québec Office des Services de Garde à l'Enfance (1993), the official licensing agency for the province of Quebec. Centres were selected to represent the linguistic, cultural and socioeconomic diversity of the city of Montreal that offered services for preschool-aged children. Fifty-five percent of directors of 67 centres agreed to participate in the study (final total sample = 37 centres), a rate that is consistent with or slightly better than that found in other studies doing similar research (CDCA, 1993; Whitebook et al., 1990). The most common reasons for refusal to participate were that the centre was either currently involved in or had recently participated in other research, or that they were too busy. Participation rates did not differ between for-profit and non-profit centres.

Only primary caregivers, defined as those educators who assumed major responsibility for the children's schedule, needs and activities, were asked to participate. Educators were required to have been working full-time at the centre for at least two months, caring for children between 3 and 5 years of age. Eighty-one female day care educators and 2 male educators agreed to participate in the study. Only the data from the female educators were analyzed for this study, given their over-representation in this particular field. Data from three educators were dropped from the study: one educator did not return her questionnaire package, despite a number of follow-up telephone calls. Two other educators who worked together at the same centre apparently completed their questionnaires together. The final sample consisted of 78 female educators.

Table 2 provides information on the personal and work-related characteristics of the educators. Seventy-eight percent of the educators were unilingual (46% spoke English, 28% spoke French); the remaining 26% were bilingual (however, the second language was not necessarily French or English). The average age of the educators was 29.5 years (SD = 6.2).

Table 2

Description of the Educators

Variable	Range	M	SD	N
Years of experience	1-15	5.65	3.53	78
Age (years)	20-50	29.5	6.22	78
SES (Hollingshead)	19-50	33.5	5.9	76

Education	<High school	High school	CEGEP[a]	CEGEP[b]	University[a]	University[b]
	2.6%	9.15%	10.4%	41.6%	14.3%	22.1%

Salary	<$15,000	$15,000-$20,000	$20,001-$25,0	$25,001-$30,000
	15.8%	52.6%	21.1%	3.9%

Time in centre	2-6mos	6-12 mos	1-2 yrs	2-4 yrs	>4 yrs
	10.3%	11.5%	19.2%	25.6%	33.3%

Language spoken	English only	French only	Bilingual
	46%	28%	26%

Age	20-29 yrs	30-39 yrs	40-50 yrs
	59%	30.7%	10.3%

Marital status	never married	married/ common law	separated/ divorced	widowed
	36%	55%	6%	3%

[a] unrelated to child care
[b] related to child care

Most were born in Canada (87%), and just over half of them were currently living with a partner. Using Hollingshead's Four Factor Index (1976), their average socioeconomic status (SES) fell into the category of skilled craftsmen, clerical/ sales workers. As a group, the SES of educators who lived with a partner was significantly higher than those not living with a partner, $F(1,75) = 12.07$, $p < .001$. Twenty-five percent (n=20) had a child of their own and 3 of these were single mothers.

Most educators reported working five days per week, 37 hours on average. A third of them had been at the same centre for more than 4 years, and as a group, they averaged over 5 years of experience in the field of child care; 62% saw themselves still working in this field in 5 years. Approximately half of them were earning between $15,000-20,000. When asked what they would most like to change about their job, 49% reported wanting better salaries. Requests to change class size and physical environment were next on the list, each collecting 13% of the votes. Despite the low salaries, most educators were relatively well-educated. Many of the educators (41.6%) had graduated from junior college with specialized training in early childhood education, and thirty-six percent had obtained a university degree. Montreal may have better trained educators than average due to teachers' high unemployment rates and the availability of junior college programs.

Procedure

Day care centre directors were contacted by telephone and asked if they would be willing to receive information on a study designed to examine the well-being of day care educators. Though this brief description of the study involved mild deception in order to reduce educator reactivity given that the focus of the study was on educator behaviour, the ethics committee accepted this decision, as all educators were debriefed as to the true nature of the study after all data were collected. If the director agreed to receive information, a description of the study was mailed to them (Appendix A). They were then given a follow-up telephone call and asked if any of the eligible educators at their centre had agreed to participate. If the response was positive, a date for visiting the centre was arranged and informed written consent was obtained from the directors and

participating educators. All observations took place in the morning and lasted approximately two hours. For all observations, the researchers remained as unobtrusive as possible, to minimize interference with the activities of the classroom.

As a means of ensuring independence in the scoring of the two caregiver observational measures, one rater observed the educator for affectionate and angry behaviour, while another observer completed the Caregiver Interaction Scale. The ECERS was rated by the primary researcher of the project. The rotation of a third trained observer was included in order to collect interrater reliability ratings on 20% of the subjects for the Affection measure and the Caregiver Interaction Scale.

When observations were completed, the educator was given a packet of questionnaires to complete within the following two weeks. Because questionnaires were given to subjects only after all observations had been completed, the raters were blind to the educators' responses to the questionnaires. The educators were instructed to complete the questionnaires within a two week period and then to telephone the researchers. Upon completion of the questionnaires, a final meeting was arranged with each educator in order to ask her a few additional questions, to obtain her impressions of what she thought influenced her ability to do her job, and to retrieve the questionnaires. She was also asked to provide her impressions of the study, debriefed as to the purpose of the study and given a $20.00 honorarium. The director was asked to complete a short questionnaire either during the visit or to mail it back to the primary researcher.

Measures

A multi-method, multi-respondent approach was employed, including researcher observations, educator self-report questionnaires, and objective data collected from directors and from the Québec Office des Services de Garde à l'Enfance (1993). All questionnaires were translated into French by a qualified translator. The back-translation was done by an independent translator and was identical to the English forms, thus the two forms were considered equivalent.

Measures related to observations of caregiving practices are presented first, followed by measures that were used to collect information on the educator's personal life, including both

background information and her perceptions of personal resources. Next, measures used for data collection at the workplace are described, including ratings on the characteristics of the day care itself and how the educator perceived her experience as a day care worker. The final section describes the children's characteristics. Means, standard deviations, ranges, and internal consistency scores (where applicable) for the full sample on the various measures used in this study are shown in Table 3.

Observations of caregiver practices.

In order to assess caregivers' affectionate behaviour, a time-sampling measure developed and evaluated by Twardosz et al. (1979) was used, hereafter called the Affection Scale. For the purposes of this study, affection was operationally defined according to the behavioural components of this scale. Four types of affectionate behaviour were coded: smiling, affectionate words, active affectionate physical contact, and passive affectionate physical contact. Many examples were provided on what did and did not constitute affectionate behaviour for each code (see Appendix B). Smiling was defined as smiling or laughing at or with others, except to ridicule or be sarcastic. Affectionate words were defined as statements of liking, enjoying, complimenting or praising others. Active affectionate physical contact included ongoing movement such as hugging, tickling, wrestling and bouncing. Passive affectionate physical contact included extensive body contact lasting at least 5 secs, such as holding hands, sitting on a lap, or leaning against each other. Other codes of affection tested by Twardosz et al. (1970) demonstrated very poor interrater reliability, and thus were not included in this study. While it is recognized that these codes were not exhaustive of all the behaviours that could be used to describe the construct of affection, Twardosz et al. (1970) found that they did significantly correspond to what informal observers of adult-child interactions deemed affectionate, and high interrater reliabilities were obtained. In addition, a review of parents', teachers' and children's affectionate behaviours (Botkin, 1983) revealed that the behaviours selected as components of affection could be grouped into three major categories: facial, verbal, and physical, which are the same elements incorporated in the present coding scheme.

Table 3

Ranges, means, standard deviations and chronbach alphas for measures used in the study on the total sample (n=78).

Variable	Range	M	SD	α
Caregiving Practices- (observations)				
Affection Scale	9 - 163 acts	69.2	35.3	
Anger Scale	0 - 13 acts	.68	2.5	
Caregiver Interaction Scale	1.8 - 3.9	3.1	.52	.95
Personal Information - (self report)				
General Well-Being	2.7 - 6.5	5.0	.89	.91
Self-Esteem	2.1 - 4.0	3.4	.44	.86
Hassles	.04 - 1.7	.64	.38	.92
Perceived Stress	.79 - 3.2	1.7	.47	.82
Social Support: satisfaction	3.9 - 6.0	5.5	.51	.83
Social Support - number	8 - 63	31.9	12.5	.89
Work Conditions- (observations)				
ECERS	2.3 - 6.2	4.9	1.0	.94
Job Perceptions- (self report)				
Job Concerns	1.0 - 3.2	1.9	.55	.92
Job Rewards	1.4 - 3.9	3.1	.49	.92
Faces	4 - 11	9.1	1.4	.87
Burnout	1.3 - 4.7	2.5	.75	.87
Supervisor Support	1 - 5	3.9	1.0	.87

Employing a time-sampling technique, educators were observed for ten seconds, then raters recorded whether or not any of the target behaviours occurred during this interval. Each rater carried a Walkman which emitted an audible signal every 10 secs that could only be heard by the observer. Each of the four scorable acts could receive a maximum of one point per codable 10 second interval. A slight modification to this rule was made with the category of passive affectionate physical contact, as it became apparent that an educator's score would be skewed if, for example, throughout an activity, she continued to hold a child's hand or if a child remained in her lap. This behaviour might also be suggestive of the educator having a particular preference for one child, for which extra credit should not be given. In such cases, she could obtain a maximum of 5 points, until a new child replaced the previous one. Two hundred observational units were collected on each caregiver, all in one morning session. These units did not include times when the educator could not be seen or heard. This amounted to approximately two hours of data collection per caregiver, and translated to 33 minutes of actual codable time. Caregivers received an affection score for each of the four behavioural codes, as well as a total score based on the total number of affectionate responses recorded. The total score was used for the purposes of analyses.

Four observers were trained in using this measure. Numerous practice sessions with the measure were carried out using video tapes and watching a classroom through a one-way mirror. Practice concordance rates (agreements/ total) ranged from 82% to 100%. Raters also achieved a score of over 90% on a comprehensive paper and pencil exam concerning the coding of the individual categories (Appendix C). For the actual study, interrater reliability was calculated on a sample of 20% of the participating caregivers. Kappa coefficients were calculated for all four codes in order to take into account the probability of a chance agreement for dichotomous variables. Coefficients for each code were as follows: smiling = .85; affectionate words = .86; active affection = .78; passive affection = .92. Similarly high agreement coefficients were found in a study conducted by Botkin and Twardosz (1988). Also recorded was whether the affection was directed at a boy, a girl, a group of boys, a group of girls or a group of both boys and girls.

Even when accounting for the target of their affection, Kappa coefficients were high, ranging from .73 to .88 for each of the 4 codes.

A measure of the caregiver's negative interactions with the children, hereafter called the Anger Scale, was simultaneously recorded along with the Affection Scale, using codes developed by Cummings and Vittimberga (1991). The purpose of observing such interactions was to determine if there were differences in affection levels between caregivers who never incurred negative interactions with the children from those who did. Four antisocial adult behaviours were recorded. These were (1) whether a caregiver handled a child in a rough manner, (2) inappropriately took something away from the child, (3) yelled at the class and/or said something that was perceived as insulting or threatening, or (4) hit, kicked, or roughly pushed an inanimate object (Appendix D). Overall interrater agreement obtained by Cummings and Vittemberga (1991) was reported at 76%, though for the present study, only one observer rated educators using this measure.

Arnett's (1989) Caregiver Interaction Scale (Appendix E), which measures raters' global impressions of the caregivers' interactions with the children, was used as an additional validation of the Affection Scale (which measures the frequencies of very specific behaviours), because it has been used extensively in previous literature and has been found to relate well to both educator and child outcomes. This particular observation measure has been used in a number of recent studies (e.g., Arnett, 1989; McBride, 1990; Phillips et al., 1992). It consists of 26 items on which the researcher rates the educator on a 4-point scale (see Appendix E for details on the individual subscales). Scores were coded such that a higher score signified better caregiving practices. Arnett (1989) reported four dimensions of this scale: Positive Interaction, Punitiveness, Detachment and Permissiveness. Positive Interaction reflected the caregiver's level of warmth, enthusiasm, and the developmental appropriateness of her communications with the children (e.g., "speaks warmly to the children"). The Punitiveness factor rated the caregiver for harsh, critical, or threatening behaviour toward the children (e.g., "threatens children in trying to control them). Items on the Detachment factor rated how involved the caregiver was with the

children (e.g., "seems distant or detached from the children") and the Permissiveness factor reflected a lax approach to children's misbehaviour (e.g., "tries to exercise control over the children"). Based on factor scores from the Caregiver Interaction Scale, Arnett (1989) found that the more training the caregivers had received in child care, the less likely they were to be authoritarian, punitive and detached and the more likely they were to interact positively with the children. Due to difficulties scoring items on the Permissiveness factor, 4 items (#4, #9, #18, & #24) were dropped from the scale. For example, for item 9, ("tries to exercise control over the children"), the raters could not decide whether a higher score was better or worse. In order to decrease the number of measures used in the present study, the scores from the three subscales were combined for a final total score. An eighty percent interrater agreement level was obtained by Arnett (1989). Using Pearson's correlation coefficient, in the present study an 81% interrater reliability score was obtained based on 20% of the sample using independent evaluators. Internal consistency was .95.

Caregivers' personal characteristics.

Information on the educator's personal background was obtained through a self-report questionnaire, providing details on her income, years of experience in child care, educational history, age, marital status, place of birth, parental status, and her mate's education and occupation, if applicable. Educators' level of child-related training as it related to her formal education was rated on a scale from 0 to 6 (0 = less than high school; 1 = high school; 2 = college diploma unrelated to child care; 3 = college diploma related to child care; 4 = undergraduate degree unrelated to child care; 5 = undergraduate degree related to child care; and 6 = graduate degree related to child care). No one had a graduate degree unrelated to child care and working in this field.

Caregivers' personal resources.

The General Well-Being Schedule (Lennon, 1980; Appendix F) is an 18-item scale used to assess symptoms of general psychological malaise during the past month and was included to assess if greater feelings of well-being would translate into more affectionate caregiving practices.

It consists of items such as the following: "During the past month, have you been bothered by nervousness?" or "how happy, satisfied, or pleased have you been with your personal life?". Strong correlations with this measure have been found with other symptom scales that assess anxiety, depression and psychophysiological disorders (Kelloway & Barling, 1991). Scores could range from 0 to 110. Higher scores indicated the presence of well-being. Means were comparable to previous research, and internal consistency was found to be excellent for the present study ($\alpha = .91$) and similar to previous research (Lennon, 1987).

Self-esteem was measured using the 10-item Rosenberg (1965) Self-Esteem Scale (Appendix G) which measures global self-esteem on a 4-point scale. This scale was included to assess if caregivers' self-esteem was related to how well the educators cared for the children. This particular scale was chosen because of its ease of administration, scoring and brevity as a straightforward estimate of positive and negative feelings about the self. As well, very satisfactory levels of internal consistency, test-retest reliability and considerable evidence of support for both convergent and discriminant validity have been found for this scale (for a review, see Blascovich & Tomaka, 1991). Internal consistency was calculated to be .86 for the current sample. Fewer than 14% of the present sample obtained an average score of less than 3.0, which is consistent with literature which has regularly found this measure to be negatively skewed (Blascovich & Tomaka, 1991).

Home-related hassles were expected to negatively impact on caregivers' affectionate behaviour at work. The new Hassles and Uplifts Scale (Appendix H) was used and consisted of 53 items which identified sources of everyday stress (DeLongis, Folkman, & Lazarus, 1988). Subjects were asked to rate each item on a scale of 0 ("not at all") to 3 ("a great deal") with respect to how much of a hassle an item was for them during the past two weeks. Participants identified all non-applicable items. Seven job-related items were omitted so that the scale would relate only to stresses in the educator's personal life. The sum of the severity scores was calculated, and divided by the sum of all "applicable" scores (i.e., ratings between 0-3). The items covered a broad range of stresses a person was likely to encounter, for example, hassles related to financial

obligations, one's health, environmental noise or pollution, home and car repairs, social commitments. This measure was chosen because it has been used extensively in the literature, and has also been found to be a better predictor of psychological symptoms than life-events inventories (Chamberlain & Zika, 1990). The overall hassle score for this study was somewhat higher than that previously reported (Gruen, Folkman & Lazarus, 1988: M=1.31, SD=.23 for Gruen et al. compared to M=1.53, SD= .36 for the present study). The internal consistency rating was high (α=.92) which compared favorably to coefficients reported by Folkman and Lazarus (1985).

The short version of the Social Support Questionnaire (Sarason, Levine, Baston & Sarason, 1983) was used to investigate the relationship of a personal support network to the caregiver's work performance (Appendix J). The measure consists of 8 items and assessed perceived availability and adequacy of supportive ties. This scale yielded two scores for each item: the number of support persons listed and the satisfaction score ranging from 1 (very dissatisfied) to 6 (very satisfied). The long version of this questionnaire has been extensively validated and demonstrated good reliability (Sarason et at., 1983). The items on the short version were selected from the long form based on high item-total correlations (r >.80) from a sample of over 150 elderly subjects (D. Gold, personal communication, Sept. 30, 1993). With the elderly sample, both dimensions positively correlated with happiness, negatively correlated with neuroticism and illness, and showed good test-retest reliability. In the present study, internal consistency was high for both the number of supports (α =.83) and the satisfaction with supports (α = .89).

Work environment.

A modified version of the Early Childhood Environment Rating Scale (ECERS; Harms & Clifford, 1980) was used as a global index of the environmental quality of the day care centre (Appendix K). This quality measure was selected because it has good psychometric properties (Harms & Clifford, 1980; McCartney et al., 1982) and is the most widely used measure of early childhood programs, thus providing continuity with other research. Individual items were rated on a scale from 1 to 7, with a rating of 1 indicating inadequate quality and 7 indicating excellent

quality. The following areas of quality were evaluated: children's personal care routines, furnishings and display, language/reasoning activities, fine and gross motor activities, social development, and adult needs. As this measure was intended to assess the curriculum and physical environment of the classroom independent of the caregiver-child interactions, all items having interactions imbedded in them were removed or modified. The final version of this measure included 26 of the original 37 items; items 11 and 13 were limited to a maximum score of 5. Overall internal consistency for the present study was excellent ($\alpha = .95$). Following the approach used by Howes et al., (1992), for some of the analyses, the measure was partitioned into two parts - "materials", which pertain to materials, schedules and activities in the classroom, and "adult needs", which pertain to the availability of separate adult areas, including a washroom and meeting room, and about support for professional development. Appendix K provides details concerning which items were omitted, and which items belong to "materials" or to "adult needs".

In addition to a global measure of day care quality, structural features of the center were obtained. Rater observations of the number of children in the classroom and ratio of caregivers to children, self-reported wages earned, and an average of the staff turnover rates provided by the directors were included as measures of workplace stressors. Staff turnover rates were assessed by asking each centre director to indicate how many educators had left the centre in the past year. The annual rate was calculated by dividing this number by the total number of educators in the centre.

Educators' job perceptions.

The two subscales from the Job-Role Quality Scales (Marshall & Barnett, 1990) were used to measure the educator's perceptions of her job rewards and concerns (Appendix L). The Job-Role Quality Scale was developed within a theoretical framework that assumes job rewards and costs are generally independent of each other and associated with different antecedents and outcomes. The items covered aspects of jobs that were likely to be significant for women service workers and were very relevant for day care workers.

For both subscales, the respondents were asked to rate their current experience at their job. Each subscale consisted of 25-items and were scored on a 4 point scale. The Job Concerns subscale included dimensions such as work overload, dead-end job, hazard exposure, poor supervision, and discrimination. The Job Reward subscale measured such aspects as satisfaction with helping others, authority to make decisions, job challenge, recognition, salary, and supervisor support. Both subscale scores have been found to significantly correlate in the expected direction with measures of mental and physical health (Kibria, Barnett, Baruch, Marshall, & Pleck, 1990). A number of relations have been found between some of the subscales and various outcome measures (Marshall & Barnett, 1990). For example, Helping, Authority to Make Decisions and Challenge subscales from the Job Rewards scale have been found to buffer the relationship of Overload (from the Concerns scale) to psychological distress. In the present study, internal consistencies for both subscales were .92.

The female Faces Scale (Dunham & Herman, 1975) was adapted from Kunin's (1955) male Faces measure and developed as a nonverbal method of assessing job satisfaction (Appendix M). This single item scale consists of 11 female faces with expressions ranging from a wide smile to a deep frown. Respondents were asked to indicate the face which expressed best how they felt about their job overall. Very good discriminant and convergent validity has been found for this measure (Dunham & Herman, 1975). It has been argued that affectively laden measures of job satisfaction are likely to be better predictors of affectively laden job driven behaviours (such as affection) than would measures relatively void of the affective components (Miller & Tesser, 1986). Compared to the Job Descriptive Index and the Minnesota Satisfaction Questionnaire, Brief and Roberson (1989) found that the Faces measure was the most balanced measure of job satisfaction, as it was the only measure to capture both positive and negative affective subcomponents.

The Maslach Burnout Inventory (Maslach & Jackson, 1981; Appendix N), a 22-item self-report instrument, was designed to measure job burnout in human service professions and has been used with samples of day care workers both within and outside of Quebec. This measure

reflects caregivers' perceptions of emotional exhaustion, how much they depersonalized others in their work, and the extent to which they felt personal accomplishment in their work. Higher levels of emotional exhaustion and depersonalization and lower levels of personal accomplishments suggest higher levels of burnout. Each item was scored from 1-7 and scoring for personal accomplishment was reversed, so that higher scores on all subscales reflected higher burnout levels. An overall burnout score was obtained by taking a mean score across all items of the scale. This scale has been extensively validated with a variety of employee populations, and satisfactory test-retest reliabilities and internal consistencies have been obtained (Maslach & Jackson, 1981). In the present study, good internal consistency was demonstrated ($\alpha = .87$). Mean burnout rates for the present sample were very similar to another sample of day care educators from within Quebec (Dion, 1989).

Supervisor social support was measured with a four-item scale developed by Caplan, Cobb, French, Harrison, and Pinneau (1980; Appendix O). Internal consistency for the Supervisor Support measure was high ($\alpha = .87$) and was similar to coefficients reported by Miller et al. (1990).

Child characteristics.

The number of boys, girls and caregivers in each classroom, and the age ranges of the children were recorded by the observers. Directors reported the percentage of children on subsidies in the centre. The caregivers reported on how many children came from single parent families, and provided estimates of occupation/education levels of the parent(s) for each child, however it was found upon receipt of the questionnaires that many educators had left the latter measure incomplete. Some reasons offered by the educators for this missing data included not knowing the parents well enough; others reported that it took too long to complete. Due to the high degree of missing data, none of these variables were included in the analyses.

Results

Data Preparation

Prior to performing any analyses, all variables were carefully examined for accuracy of data entry, missing values, and for the fit between their distributions and the assumptions of univariate and multivariate analyses of variance. Univariate outliers were brought in to 3 standardized scores from the mean, as recommended by Tabachnick and Fidell (1989). Several variables were found to be significantly skewed and were transformed effectively using square root or logarithm transformations. Subsequent analyses using the transformed data, however, did not alter the results, thus original data are reported in the text.

Characteristics of the Centres and Classrooms

Table 4 provides ranges, means and standard deviations on the characteristics of the centres and the classrooms. Overall, centre sizes varied considerably. The smallest centre sampled consisted of 3 educators caring for 20 children, while the largest centre consisted of 23 educators and over 150 children. No more than 6 educators from each centre participated. All directors had at least two years of experience in the child care field, and almost a third of the directors had worked at the present centre for more than 10 years. On average, parents paid $114 per child per week, however almost a quarter of the present sample paid more than $125 per week, some paying as high as $150.

Most classes included one or two educators, and based on educators' reports the average educator to child ratio was 1:8 (56%) which is the maximum ratio permitted according to Quebec licensing standards. It should be noted that almost 40% of the classes exceeded this limit. Moreover, 10% of the educators reported more than 11 children per educator. While all centres sampled were licensed, not all followed licensing standards. However, none of the classrooms exceeded the permitted limit in Quebec of 30 children per class, a far higher number than the Canadian average of about 21 children per class. On average, turnover rates for this sample were lower than those generally found in the American samples, though similar to rates previously reported in Quebec (CDCA, 1993). The caregivers' average turnover rate for the past year was

Table 4

Characteristics of the Centres and the Classrooms

	Range	M	SD	N
Ratio (adult:child)	1:4-1:14	1:8.4	1.9	78
Turnover rates	0-75%	21%	18%	37
ECERS score	2.3-6.2	4.9	1.0	37
Total number of children in the class	6-29	15	7	78
Ratio of boys to girls	.28-3.5	1.3	.75	76
Total number of children in the centre	20-150	67.7	33.8	75
Parent fees per child	$70-$150	$114.3	$15.9	72
Percent of subsidized children in the centre	2% - 89%	26%	20%	71
Percent of children from single parents in the class	0-79%	23%	22%	46
Total number of educators in the centre	3-23	11	3.6	75
Number of months director worked in this centre	7-240	157	66	70

21%. While in the minority, it is disconcerting to note that 12% of the centres sampled had turnover rates greater than 40%, suggesting a high degree of instability at those particular centres. Global centre quality, as measured by the ECERS, revealed that no centre achieved a score of "inadequate" or "excellent", a common Canadian finding that differs from the United States. Most of the sampled centres' quality scores hovered around an average rating of "good".

Generally, there were a few more boys enrolled than girls in each class. On average, about one fourth of these preschool-aged children were from single parent homes. A similar proportion were on day care subsidies. Few educators reported having a child in her group who spoke a different language (16%) or had a handicap (10%). Although preschool classes were the target, 15 educators reported caring for a child between the age of 2-3 years. The age difference of youngest to oldest child in the class for the vast majority of classes, however, did not exceed 12 months. Eighty-seven percent of the educators rated the day their classrooms were observed to be typical. The two most common reasons offered as to why the day was not typical was that the children acted up or were more calm. As this explanation was generally assumed for all classes visited, and no unusual reason was offered to explain why the day was atypical, no classes were excluded from the analyses.

As expected from previous studies, family characteristics were not independent of centre quality. The variable that best represented the types of families using the centres was the overall percent of children at the day care on subsidies as reported by the director. In this way, it could be estimated how many children in this centre came from families that were disadvantaged economically. As expected, the proportion of children on subsidies increased as the centre quality decreased, as measured by the overall ECERS score (r=-.50, df = 71, p= .0001).

Centre auspice was nearly equally represented; 56% percent of the centres were non-profit and 44% were for-profit. As centre auspice has regularly been shown in the literature to be a strong indicator of centre quality (Pence & Goelman, 1987; Whitebook et al., 1990), and given the number of significant correlations between quality indices (see Appendix P for intercorrelation matrices across all domains), a MANOVA was performed to determine if centre characteristics

varied as a function of auspice. All the quality variables were entered in the MANOVA and included quality of caregivers' needs met as measured by the ECERS (e.g., separate adult washrooms, place to store belongings, frequency of staff meetings, access to workshops, sharing of professional materials), quality of the materials available as measured by the ECERS, turnover rates, ratios, number of children in the class, parent fees, percent of children on subsidies, educator's training, wages, and her affectionate and angry behaviour. Centre size was excluded from the analysis as it was considered redundant with class size, (r=.71). Using Pillais' criterion, the combined variables were significantly affected by profit status, $F(11, 52) = 7.6$, $p <$ .0001, and 79% of the variance was accounted. A simple post-hoc analysis using univariate F-tests (df = 1,62) indicated that in that the for-profit centres parent fees were higher (F=31.8, p = .0001) , salaries lower (F =6.48, p = .01), adult needs less well met (F =17.8, p = .0001), and number of children in the class higher (F = 11.6, p = .001; see Table 5 for means and standard deviations). On all measures, the non-profit centres emerged as better quality, which is consistent with previous research.

Description of Affectionate Behaviour in the Classroom

One goal of the present study was to determine what predicted educator's affectionate behaviour. As expected, there was good convergent validity between the Affection score and the Caregiver Interaction Scale (r= .76, df = 78, p< .0001), despite having been scored by two independent raters (thus not artificially inflating the correlation). As well, the Affection scale correlated negatively with total number of acts of educator anger (r=-.27, df = 78, p = .02).

The means, standard deviations and ranges for the Affection measure and its subscales can be found in Table 6. On average, educators displayed 69 acts of affectionate behaviour, which translates to approximately 124 acts per hour. Smiling was the most common manner in which educators expressed affection to the children. Affectionate words were next, followed distantly by passive and active affectionate physical contact. Table 7 further breaks down these scores as a function of the recipient of the affectionate behaviour. Based on the results of paired t-tests, the vast majority of affectionate behaviours, across all affection categories, were directed at

Table 5

Means and Standard Deviations on Quality Variables as a Function of Profit-Status

	Profit Centres		Nonprofit Centres	
Variable	M	SD	M	SD
Percent on Subsidies	28%	.18	21%	.19
Parent Fees***	$122	$8	$105	$13
Wages (category)*	2.7	.62	3.3	.90
Training level	3.3	1.4	3.3	1.5
Adult Needs***	4.0	1.2	5.4	1.1
Materials Available	5.3	.95	5.2	1.2
Turnover Rates	24%	12%	20%	24%
Ratio	8.7	2.3	8.0	1.8
Class Size**	18.3	8.0	12.7	5.4
Affection	65.2	36.5	76.1	33.6
Anger	.80	2.5	.05	.32

*** $p < .0001$
** $p < .001$
* $p < .01$

Table 6

Ranges, Means and Standard Deviations for the Affection Total Score and Subscale Scores (N=78).

Variable	Range	M	SD
Affection (total score)	9-163	69	35
Smiling	2-87	32	18
Affectionate Words	0-58	18	12
Passive Affection	0-45	10	11
Active Affection	0-40	9	9

Table 7

Ranges, Means and Standard Deviations for the Affection Total Score and Subscale Scores as a Function of Recipient (N=78).

Variable	Range	M	SD	t-value
Affection (total score)				
Boys	0-135	30.8	24.4	-.81
Girls	2-112	33.9	27.0	
Individuals	3-162	61.1	37.2	10.81***
Groups	0-64	15.3	13.9	
Smiling				
Boys	0-66	11.5	9.2	-1.03
Girls	0-45	12.9	9.4	
Individuals	2-60	23.3	13.4	8.88***
Groups	0-51	8.6	9.1	
Affectionate Words				
Boys	0-26	7.4	6.0	-.74
Girls	0-33	8.0	6.5	
Individuals	0-52	15.0	10.4	10.68***
Groups	0-22	2.7	3.6	
Passive Physical Contact				
Boys	0-99	6.9	14.1	-.78
Girls	0-81	8.8	16.5	
Individuals	0-100	13.8	19.7	4.70
Groups	0-47	3.6	8.7	
Active Physical Contact				
Boys	0-21	5.0	5.3	1.46
Girls	0-18	4.2	4.3	
Individuals	0-38	9.0	8.3	9.47***
Groups	0-4	0.4	0.8	

$p < .001$

individuals and not groups (df = 78, p < .0001), which is consistent with previous research (Botkin & Twardosz, 1988). Except for active affectionate physical contact, on average, girls received slightly more affection than boys, although the differences were not significant.

Group Differences Between Educators with High and Low Affection Scores

As mild to moderate correlations were found among variables within each domain, four oneway multivariate analyses of variance were performed for each domain in the model (i.e., background characteristics, personal resources, work environment and job perceptions) to determine if there existed mean differences among the variables between educators who were more affectionate with the children and educators who showed less affection. Univariate F-tests were used as follow-up analyses. Educators were grouped into high or low affection categories based on a median split score of 66.5 affectionate acts. All non-dichotomous variables from each domain were included in these analyses (review Table 1 for a list of all variables in each domain). Means and standard deviations for the variables in each domain by high and low affection are shown in Table 8.

According to Pillais' criterion, the combined dependent variables were significantly influenced by affection grouping only for the Work Environment domain, F(6, 61) = 2.77, p < .02. The multivariate combinations of variables in the other three domains were not significant. A summary table for each analysis can be found in Appendix Q. The results reflected a moderate association between affection scores (high vs. low) and the combined dependent variables in the Work Environment domain, Rc =.46. Univariate tests of significance indicated that ECERS scores (F(1,66) = 7.15, p = .009), turnover rates (F(1,66) = 3.94, p = .05), percent on subsidies (F(1,66) = 4.85, p = .03), wages (F(1,66) = 3.85, p = .05), and number of children in the class (F(1,66) = 4.49, p = .04) significantly differed when grouped according to high and low affection. Centres where the caregivers had higher affection scores had higher ECERS scores, lower turnover rates, fewer children on subsidies, higher educator salaries, and more children in each class.

Table 8

Mean Score on Each Variable by Low and High Affection

	Low Affection		High Affection	
	M	SD	M	SD
WORK ENVIRONMENT[a]				
ECERS*	4.7	0.9	5.3	0.8
Ratio	7.8	1.9	8.6	1.8
Turnover*	.26	.20	.16	.18
Percent on Subsidies*	.30	.24	.20	.14
Wages*	2.8	0.8	3.2	0.9
Number of Children in Class*	12.7	6.0	16.2	7.5
PERCEPTION OF JOB				
Burnout*	2.7	0.8	2.3	0.6
Job Reward	3.1	0.5	3.0	0.5
Job Concerns	2.0	0.5	1.9	0.6
Job Satisfaction	9.1	1.5	9.2	1.2
Supervisor Support	3.9	1.0	3.9	0.9
BACKGROUND				
Training	3.1	1.1	3.4	1.6
Experience	5.7	3.5	5.2	3.4
Age	30.6	7.3	28.3	4.5
SES	32.5	5.9	34.5	6.0
PERSONAL RESOURCES				
Well Being	4.8	0.9	5.2	0.9
Self-Esteem	3.4	0.5	3.5	0.4
Home Hassles	.70	.37	.59	.39
Social Support	5.5	0.5	5.5	0.5

* univariate F-test significant at $p < .05$

[a] MANOVA $p < .02$

The only unexpected finding was that educators in larger classes were more affectionate, so a follow-up analysis was performed to determine if educators or classes with more children differed in some way from educators or classes with less children. Two hypotheses were tested; (1) whether better trained educators were given more children, and (2) given that girls, on average, tend to receive more affection than boys, perhaps larger classes had more girls than boys in them. Inspection of the means revealed that, on average, classes were significantly larger for better trained educators than for less trained educators (M = 17 vs 13 children in the class, respectively), $F(1,75) = 6.0$, $p < .01$, and when the ratio of girls to boys was higher than boys to girls in the class, the class size was larger (M = 16 vs 14, respectively), although this finding was not significant ($p > .05$).

Correlations between Educator Background Variables, Personal Resources, Job Perceptions, Work Environment, and Affection

An examination of the univariate correlations with affection revealed a similar pattern of results as those reported using the MANOVAs (see Appendix R). Few simple correlations with affection were significant, and of those that were, only variables from the Work Environment domain were significant at $r > .30$, $df = 78$, $p < .01$. These variables were ECERS ($r = .39$, $df = 78$, $p = .0001$), percent of children on subsidies ($r = -.34$, $df = 71$, $p = .008$) and wages ($r = .32$, $df = 76$, $p = .005$). Four other variables showed mild correlations with affection at $p < .05$. These included the number of children in the class ($r = .25$, $df = 78$, $p = .02$), burnout ($r = -.29$, $df = 74$, $p = .01$), and well-being ($r = .25$, $df = 78$, $p = .05$). No variable from the Background domain significantly correlated with affection.

Using multivariate regression analyses to predict affection, four multivariate relationships were examined as predictors of total affectionate behaviour across the four domains. The same non-dichotomous variables that were previously used in each set were selected for these correlational analyses. Again, no set of variables from the Background characteristics domain, the Personal Resources domain, or the Job Perception domains significantly predicted affectionate behaviour ($p > .10$), and the variance accounted for by these three sets combined was less than 9%

in total (see Appendix S). Only the set of variables from the Work Environment domain emerged significant in predicting affection, F (6,61) = 3.18, p = .009 and accounted for 24% of the variance. No variable contributed unique variance.

Description of Educators' Expression of Anger

The majority of the educators did not show any acts of anger during the brief time they were being observed, however it was noteworthy that 12% (n=9) of the educators did express some angry behaviour towards the children while in the presence of outside observers during the brief period of time their behaviour was being assessed. During this period, the number of angry acts ranged from 1-13. Most acts were either the educator handling the child in a rough manner (9% of all educators did this) or speaking to the children in what was deemed a threatening or insulting manner (also 9%). A few educators took something away from a child in an inappropriate way (3%), however, no educators directed their anger at an inanimate object. The average affection score for educators who displayed some anger was 47.8, much lower than the average affection score of 72 who displayed no anger (t(10.79) = 2.15, p = .03). Only two of the nine educators who displayed anger scored higher than average on the affection scale.

Group Differences Between Educators with High and Low Anger Scores

From the previous analyses, it appears that the workplace environment is most related to the expression of affection. Very little direct relation appears to exist between affectionate behaviour and the educator's background characteristics, her personal resources, or her view of her job. A similar question was posed concerning which variables would distinguish educators who displayed angry behaviours from those who did not. To answer this question, the same analyses were conducted to determine if educators who expressed anger differed somehow from those who never showed anger. Again, because of the moderate correlations between variables within each domain, four one-way MANOVAs were performed for each domain in the model. Educators were grouped into two categories: angry (at least one act of anger shown while being observed) versus not angry (no acts of anger witnessed). The same non-dichotomous variables shown in

Table 1 were used. Means and standard deviations for the variables in each domain by high and low anger are shown in Table 9.

According to Pillais' criterion, the combined dependent variables were significantly influenced by the anger grouping only for the Job Perception domain, $F(5,68) = 3.47$, $p < .0001$. The multivariate combination of variables in the other three domains were not significant ($p > .05$; Appendix T). The results reflected a moderate association between high and low anger scores and the combined dependent variables in the Job Perception domain, Rc=.45. Univariate tests of significance indicated that Job Rewards ($F(1,66) = 7.15$, $p = .009$), Job Concerns ($F(1,66) = 3.94$, $p = .05$), and Supervisor Support ($F(1,66) = 4.85$, $p = .03$) significantly differed when grouped according to high and low anger. Caregivers who had higher anger scores reported having fewer job rewards, more job concerns, and less supervisor support.

To better understand these findings, correlations with the various subscales of the Job Rewards and Job Concerns measures with anger scores were computed. As shown in Table 10, correlations that accounted for more than 10% of the variance (i.e., $r < .30$, $p < .01$) were found between anger and the following subscales of the Job Reward measure: authority to make decisions, the degree to which the job was challenging, and the amount of supervisor support. On the Job Concerns measure, the less supportive the supervisor was perceived, the more anger the educator expressed. Accordingly, a "common denominator" across all three measures that significantly related to the educator's anger was the quality of the relationship the educator perceived she had with her supervisor. In large part, it appears that the educator's level of anger is most related to her perception of how supported she feels, particularly by her supervisor. In contrast, correlations with affectionate behaviour and scores on the subscales from both measures were weak.

Centre Quality by Educators' Background Characteristics, Job Perceptions, and Personal Resources.

A number of canonical correlational analyses were performed to better understand the relationships between the various domains and to assist in building a final model. For each

Table 9

Means and Standard Deviations for Each Variable in Each Domain by No Anger and Some Anger

Variables	No Anger		Anger	
	M	SD	M	SD
WORK ENVIRONMENT				
ECERS	5.03	1.0	4.75	.66
Ratio	8.28	1.87	7.33	1.91
Turnover	.20	.20	.35	.09
Percent on Subsidies	.24	.19	.37	.21
Wages	3.06	.90	2.67	.51
Number of Children in Class	14.35	6.95	16.00	7.92
PERCEPTION OF JOB [a]				
Burnout	2.40	.71	2.83	.98
Job Reward***	3.13	.45	2.58	.41
Job Concerns*	1.88	.49	2.26	.72
Job Satisfaction	9.19	1.33	8.89	1.54
Supervisor Support***	4.04	.87	2.86	1.01
BACKGROUND				
Training	3.29	1.39	2.88	1.17
Experience	5.36	3.50	6.11	2.66
Age	29.39	6.31	29.77	4.96
SES	33.78	6.26	31.55	3.03
PERSONAL RESOURCES				
Well Being	5.01	.87	4.81	1.07
Self-Esteem	3.45	.42	3.26	.53
Home Hassles	.62	.35	.79	.55
Social Support	5.51	.49	5.42	.63

*** univariate F-test significant at $p < .001$

* univariate F-test significant at $p < .05$

[a] $p < .0001$ based on results from MANOVA

Table 10

Correlations of the Job Reward and Job Concerns subscales with Anger and Affection

	Anger	Affection
Job Rewards		
Help Others	-.19	-.10
Authority	-.41**	-.02
Challenging	-.31*	-.01
Supervisor support	-.37**	-.01
Recognition	-.18	-.09
Salary	-.18	-.00
Job Concerns		
Overload	.25	-.18
Deadend	-.07	-.23
Hazardous	.13	-.18
Supervisor Support	.30*	-.10
Discrimination	.04	.09

*$p < .05$

** $p < .01$

canonical correlation performed, Tables 11-13 show the correlations between the variables and the canonical variates, within-set variance accounted for by the canonical variate (percent of variance), redundancies, and squared canonical correlations. When interpreting the correlations between the variables and the canonical variates, a cutoff correlation of .30 (10% of the variance accounted for in the set) was used.

Work environment and educator "self-selection". The analysis just presented was conducted to ascertain whether certain pre-existing characteristics of the educator were associated with aspects of the day care centre. A major challenge to all cross sectional studies in day care research is the fact that caregivers are not randomly assigned to centres. A canonical correlation analysis was performed between a set of educator characteristics and centre quality variables to determine if a set of caregiver characteristics would be related to a set of quality characteristics, suggesting a possible selection effect. Given the need to choose only educator variables that may have preceded her choice of centre (and thus were less influenced by her having been working at that centre), only two caregiver variables were deemed appropriate: her background training and place of birth (born in Canada = 1; born elsewhere = 2). The second set of variables included all the centre characteristic variables.

The canonical correlation revealed one significant pair of variates (Table 11), which represented 33% overlapping variance between the pair of canonical variates ($F(18, 106) = 1.8$, $p = .03$). The educator variate explained 16% of the variance in the centre quality variables. Based on our cutoff loading ($r > .30$), taken as a pair, the canonical variates indicate that less specialized training and being born outside of Canada were associated with poorer centre quality, such as working in centres where educators' needs are not being met and materials are not well-provided, more children are on subsidies, parent fees are higher, and salaries are lower.

Work environment and job perceptions. It was expected that the quality of the work environment would directly impact on the educator's sense of well-being and satisfaction with her job. As can be seen in the intercorrelation matrix (Appendix P), there were many significant

Table 11

Correlations, canonical correlations, percent of variance, and redundancies between educator background characteristics and work environment variables and their corresponding canonical variates (N=63)

	Correlation
Educator Characteristics set	
TRAINING	-.45
BIRTH PLACE	.86
percent of variance	47%
redundancy	16%
Work Environment set	
ECERS- adult needs	-.77
ECERS- materials	-.70
PROFIT STATUS	-.17
TURNOVER	-.06
CLASS SIZE	-.03
PARENT FEES	.30
PERCENT ON SUBSIDIES	.35
WAGES	-.47
DIRECTOR EXPERIENCE	-.26
percent of variance	18%
Rc^2	33%

Table 12

Correlations, canonical correlations, percent of variance, and redundancies between the educators' view of their professional role and work environment variables, and corresponding canonical variates (N= 63)

	Correlation
Work Environment set	
ECERS	-.26
PROFIT STATUS	-.90
TURNOVER RATES	-.03
RATIO	.03
NUMBER OF CHILDREN IN CLASS	.35
PERCENT OF CHILDREN ON SUBSIDIES	.43
WAGES	-.44
percent of variance	20%
redundancy	7%
Educators' Job Perception set	
BURNOUT	.40
JOB REWARD	-.89
JOB CONCERN	.52
SATISFACTION	-.57
SUPERVISOR SUPPORT	-.45
percent of variance	35%
Rc^2	37%

Table 13

Correlations, canonical correlations, percent of variance, and redundancies between the educators' personal resources and their view of their professional role, and corresponding canonical variates (N= 74).

	Correlation
Personal Resources set	
WELL BEING	-.87
SELF ESTEEM	-.80
SOCIAL SUPPORT	-.39
HOME HASSLES	.63
percent of variance	49%
redundancy	26%
Educators' Job Perception set	
BURNOUT	.97
JOB REWARD	-.43
JOB CONCERN	.54
SATISFACTION	-.68
SUPERVISOR SUPPORT	-.53
percent of variance	44%
Rc^2	54%

bivariate correlations between these two domains. Only turnover rates, ratio, and availability of materials did not significantly correlate with any of the job perception variables.

A canonical correlation analysis was performed between a set of all the variables related to the educator's view of her job and a set of all the work environment variables. The canonical correlation revealed one significant pair of variates (Table 12) which represented 37% overlapping variance between the pair of canonical variates ($F(35, 225) = 1.50$, $p = .04$). The day care quality variate reduced 7% of the uncertainty in the educator's perception of her job variables. These findings indicate that centres that are for-profit and have larger classes, more children on subsidies, and lower wages also have educators who perceive they have fewer job rewards, less job satisfaction, less supervisor support, more burnout, and more job concerns. These findings support the expected view that the educator's work environment will exert an influence on her satisfaction in the workplace.

Work environment and the caregiver's personal resources. A similar analysis was performed between variables representing a set of all the educator's personal resources apart from her work domain (note that perceived stress was excluded from the analysis as it was deemed redundant with well-being, $r = -.74$), and the same variables used in the previous analysis reflecting day care characteristics. Given the more indirect relationship between these two domains, the strength of the relationship was expected to be weaker compared to the previous analysis. An inspection of the bivariate correlations between the two domains revealed far fewer significant relationships (see Appendix P). An overall nonsignificant finding emerged ($p > .10$), despite similarity in sample size and the number of variables entered in the equation with the previous analysis. This, along with a minimal amount of variance accounted for, suggests that work conditions have less of an impact on home functioning and feelings about oneself than on perceptions specifically about one's professional role.

Job perceptions and personal resources. According to Bronfenbrenner's ecological model, it was expected that the educator's home environment and personal resources would directly impact

on her perception of her job, and vice versa. As can be seen in the intercorrelation matrix (Appendix R), there were many significant bivariate correlations between these two domains.

A canonical correlation analysis was performed between a set of all the variables related to the educator's view of her job and a set of all the personal resources variables. The canonical correlation revealed one significant pair of variates (Table 13) which represented 54% overlapping variance between the pair of canonical variates ($F(320, 272) = 3.29$, $p = .0001$). The personal resources variate reduced 26% of the uncertainty in the educator's perception of her job variables. These findings indicate that educators who have a lower sense of well-being, lower self-esteem, feel less social support, and feel more hassled at home also perceive they have fewer job rewards, less job satisfaction, less supervisor support, more burnout, and more job concerns. These findings support the expected view that the educator's perceptions of her personal resources outside of work and her satisfaction at the workplace are related.

Background characteristics and personal resources, job perceptions. In order to complete the examination of relationships between all the domains in the model, two final canonical correlations were computed to determine if the educator's background characteristics would be related to either her personal resources or her perceptions of her job. In both cases, the results were nonsignificant ($p < .10$).

In summary, based on the direct relationships with affection and anger with each domain, as well as the relationships between the domains, there appear to be different pathways leading to affection and anger. Affection appears to increase in direct relation to an increase in the quality of the work environment, whereas anger is more likely to be higher when the educator perceives her job more negatively, particularly how supported she feels by her supervisor. While the background variables and personal resources variables did not directly influence the educator's behaviours in the classroom, they did seem to play a role. Based on the results from the canonical correlations reported between centre quality and educator background characteristics, it appears that both training and place of birth affect what kind of day care centre the educator will find herself working in. Furthermore, more children from disadvantaged homes will attend lower

quality centres. The work environment, specifically class size, number of children on subsidies, profit status, and wages, as well as her personal resources, such as self-esteem, well-being, home hassles and social support, are related to the educator's job perceptions. Given these findings, a model can be proposed illustrating two potential different pathways that lead to affection and anger, as shown in Figure 1. It should be noted that this model is not based on a path analysis, as there were insufficient participants to conduct such an analysis reliably, but is based on an integration of the analyses previously reported.

Conditions Under Which the Relationship Between Training and Affection or Anger is Strengthened: The Importance of Interactions Between Variables

To better understand the conditions under which affectionate interactions are most likely to occur and angry interactions least likely to occur, a final goal of the current investigation was to examine a particular variable in conjunction with other variables with respect to affection and anger. As Belsky (1993) noted, a failure to discern a significant group difference does not automatically mean that the variables studied are not important in understanding the caregiver's behaviour. Rather it might mean - if the sample, measures, and research design are sound - that the effect of the variables in question are not discernible when each is examined in isolation. For example, it is quite conceivable that training, which was not directly related to affection or anger as expected, only plays a role in affecting the educator's behaviour when some other risk factor such as low self-esteem is present. If this is indeed the case, then the adequate test of the influence or contribution of training cannot solely involve a simple comparison between affectionate and unaffectionate groups or angry and not-angry groups. Instead, an assessment of the interaction of two variables (e.g., training and self-esteem) in affecting the likelihood of affection or anger is required. If an interaction reveals that under condition of "dual risk" (e.g., poor training and low self-esteem) affectionate levels are lower and anger levels are higher when compared to groups with high levels of training and low self-esteem, this would indicate that differential levels of training are indeed important to consider under low levels of self-esteem. Another way to explore interactions is to consider if, under a condition of risk (e.g., poor

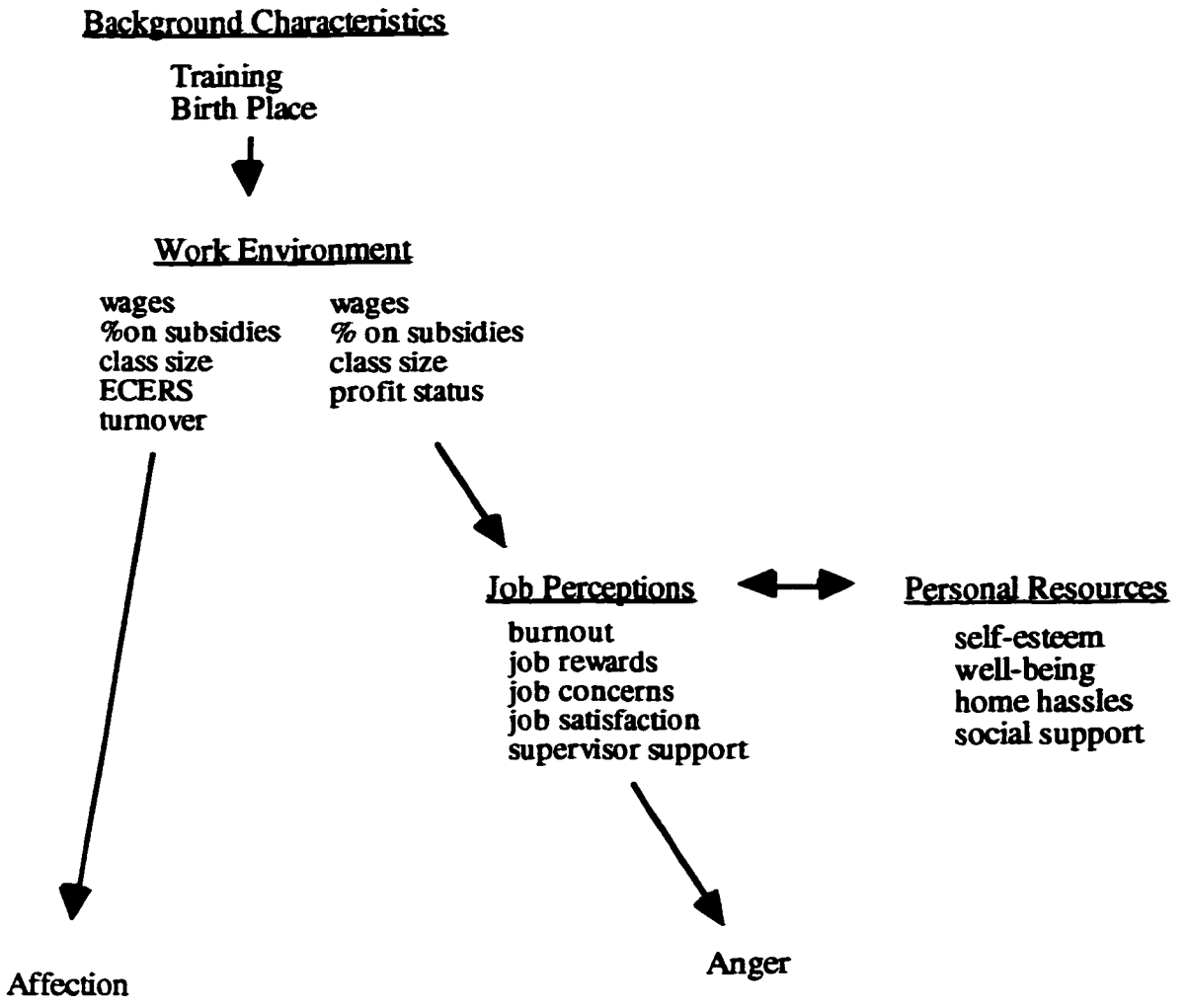

Figure 1. Model of determinants of affectionate and angry behaviours.

training), did educators exhibit higher levels of affection and lower levels of anger if a buffer/ protective factor (e.g., high self-esteem) is introduced.

To reiterate, though not emerging as a direct effect on affection or anger, perhaps training has an influence on these caregiver behaviours in a less obvious way, by its interactions with other variables. To answer the question, "Under what conditions is training influential in predicting affectionate or angry behaviour?", the mean affection and anger scores were inspected across two levels of training as a function of three levels of twenty other variables. All continuous variables were transformed into discrete levels reflecting low, moderate or high levels of each variable. The low and high levels reflected the bottom and top quartile, respectively. The moderate level reflected the middle 50% of the distribution for that particular variable.

Table A15 in Appendix U illustrates the mean affection and anger scores for low and high levels of training as a function of three levels of the other variables. Examination of the means indicated a highly consistent pattern, namely, the lowest amount of affection and highest levels of anger were obtained under "dual risk" conditions, where one of the risks was low training. As indicated in Table 14, the mean affection score was the lowest and anger score the highest in the cells where the caregiver was both poorly trained and another risk factor was present (e.g., low self-esteem, high job concerns). The results suggest that educators who are not sufficiently trained may be less affectionate and display more anger with the children when another risk factor is present. Furthermore, higher levels of affection and lower levels of anger were noted for higher levels of training under the same adverse conditions (e.g., low self-esteem, high job concerns), suggesting that training can serve as a protective factor from negative influences.

Given that the assumptions about the nature of the distribution of the variables in the different cells may not have been met, the most appropriate way to analyze this data was by performing a nonparametric sign test of significance. Two approaches were used: (a) comparing affection and anger scores between educators who are high on training versus those who are low on training, under conditions of risk (e.g., when the educator has feelings of low self-worth, or is highly stressed, etc.), and (b) examining affection and anger scores only for those educators who are

Table 14

Mean scores of affection and anger for two levels of training and three levels of two other variables

		Affection		Anger	
		low training (risk)	high training	low training (risk)	high training
Self-Esteem	low (risk)	45[a]	55	.92[a]	0
	medium	75	76	1.1	.76
	high	77	68[b]	0	0[b]
Job Concerns	low	75	71	.17	0
	medium	70	68	.54	.29
	high (risk)	54[a]	86[b]	1.7[a]	1.6[b]

a Dual risk cell: Low training and another risk present

b High training as a protective factor

supposedly at "risk" in that they are poorly trained, across low risk and high risk situations (e.g., comparing those who had low vs high feelings of self-worth, or those who felt low stress compared to being highly stressed). The results were consistent with expectations. For part "a", in 18 of the 20 conditions the highly trained educators' affection score emerged higher than that of the poorer trained educators (binomial 2-tailed $p = .0004$). The two variables that did not operate in expected fashion were the percent of children on subsidies and class size. For part "b", again when all educators were poorly trained, it was under conditions of risk that her affection score was lower than under conditions of less risk (binomial 2 tailed $p = .0026$). That is, out of 20 conditions examined, 17 of them were in the expected direction. In only 3 conditions did the "lower risk" group have a higher affection score: job reward, class size, and ratios.

A highly consistent pattern emerged when examining the anger scores, namely, the highest amount of anger was obtained under "dual risk" conditions. For part "a", in only two conditions did the poorly trained educators' anger score emerge lower than that of the better trained educators (viz., burnout- though it should be noted that no highly trained educators experienced high levels of burnout; and wages; binomial 2 tailed $p = .0007$). For part "b", again when all educators were poorly trained, it was under conditions of risk that her anger score was higher than under conditions of less risk. In only 2 cases did the "lower risk" group have a higher anger score: experience, director experience (binomial 2 tailed $p = .0002$).

These results suggest that while training may not emerge as a significant factor in the display of affection or anger, under closer examination, educators who are not sufficiently trained may be more angry and less affectionate with the children when another risk factor is present. Similar to the affection results, lower levels of anger were noted for higher levels of training, even under the above adverse conditions, suggesting that training can serve as a protective factor from negative influences. Though not depicted in the proposed path model, these interactions are important and efforts to replicate these findings should be undertaken with larger samples.

Discussion

The present study was an exploration of the correlates of educator affection and anger in the day care setting. A number of hypotheses were investigated, and in general, were found to be consistent with the literature. As expected, family characteristics were not independent of centre quality, a highly significant relation was found between centre quality, caregiver behaviour and auspice of the centre, and educators were more likely to give affection to individuals rather than groups of children. Consistent with previous research, the work environment differentiated more affectionate educators from less affectionate educators, whereas job perceptions, specifically how supported the educators felt by their supervisor, differentiated angrier educators from their less angry counterparts. Educators who reported a lower sense of well-being, lower self-esteem, less social support and more hassles at home also reported having more negative job perceptions. As anticipated, better educated caregivers were found in better quality centres. The only other personal characteristic of the educator that related to the work place environment was whether or not she was born in Canada.

A few unexpected findings emerged. First, training did not relate *directly* to the educator's behaviour in the classroom. However, under conditions of risk, a highly consistent pattern of results was found, namely the lowest amount of affection and highest levels of anger were obtained under "dual risk" conditions. In addition, class size and ratio of children to educator did not relate to the educator's behaviour in the classroom in the expected direction, namely, lower ratios and smaller class sizes were not related to more affectionate and less angry caregiver behaviour.

The discussion will be approached in the following manner. First, the characteristics of the centres and the classrooms selected for the study will be described. Issues concerning family characteristics and auspice will then be presented. General findings about the caregiver's behaviour in the classroom will then be described, along with some explanations why results relating to ratios and class size emerged in unexpected directions. A discussion on the domains directly related to affection and anger will follow, and interrelations among domains will be

presented in the context of Bronfenbrenner's ecological model. Findings related to educator's training with respect to her behaviour in the classroom will be elucidated, with particular focus on the importance of exploring interactions between caregiver training and other variables. Finally, limitations of the present study will be considered, and directions for future research will be provided.

Description of daycare characteristics and centre quality: Regulatable features, global ratings and caregiver interactions with the children

The first goal of the present investigation was to describe characteristics of the centres and the classrooms selected for the study on a number of different measures and based on different information sources, and to replicate previous work that has found that family characteristics and profit status are not independent of centre quality.

Our sample of centres was similar to previous reports conducted in Canada with respect to global quality (Schlieker et al., 1992) and turnover rates (CDCA, 1993). The classes were somewhat larger than those found in other provinces and the caregivers were better educated (Friendly, 1994). This is most likely due to different licensing criteria in Quebec where classes are permitted to be as large as 30 children and training criteria are more stringent. Caregivers in Quebec may also be more educated because they have access to early childhood education programs at the junior college level and the job market for teachers in the province is saturated. Although there was an adequate range of quality in our sample, no centre was rated as either inadequate or excellent. This finding differs from reports emerging from the United States or Bermuda (Howes et al., 1992), where less than adequate centres are common and where licensing standards are less stringent. Centres rated as "excellent" are also more commonly found in the United States than in Quebec.

Though not a problem specific to the present study, it is possible that our sampling procedure resulted in a somewhat higher level of quality than might exist by random selection from the population. Three factors might have contributed to the fact that none of the centres had "poor" global quality ratings. First, centres were selected from a list of licensed settings. An even

greater range of quality might have been found had non-licensed centres been included in this study, as commonly done in studies conducted in the United States. Second, some amount of self-selection may have occurred because the centre directors had to agree to participate, and the caregivers had to agree to be observed in their place of work, and to complete a lengthy questionnaire. Recall that 45% of directors refused to allow us into their centre, and there is no way of knowing how many educators declined to be part of this study. Educators in lower quality centres and/or educators who were less competent might have been more likely to decline to be observed. Finally, all directors and educators knew in advance when we were arriving to visit their centre and may have adjusted certain features of the classes to improve the quality ratings (e.g., ratios, caregiver behaviours). In fact, while we were observing one centre, employees from the official licensing bureau of Quebec came in to conduct a "random" check on whether the centre was adhering to licensing standards. The staff of the centre were able to identify these people from the licensing bureau in advance, and proceeded to place support staff such as janitors and kitchen staff into the classrooms in order to improve child - "educator" ratios. This was a centre where very high ratios, poor caregiver practices, and increased numbers of crying children were observed prior to the arrival of the licensing bureau personnel. Moreover, it was disconcerting that so many other centres observed were not adhering to licensing standards, a finding not uncommon in American studies (Howes et al., 1992). For example, in the present sample, over 40% of classes exceeded the 1 to 8 caregiver to child ratio.

In summary, the present study generally dealt with centres of good quality, relatively well-trained educators, and somewhat large class sizes, though variations in the centres were apparent. Given these regulatable characteristics and global quality ratings, the question relating centre quality to family SES and centre auspice was next addressed.

As expected from previous studies, family characteristics were not independent of centre quality. Disadvantaged children (as measured by the director's estimate of the percent of children in the centre on subsidies), were significantly more likely to be found in lower quality centres as measured by the ECERS and to have less affectionate, more angry caregivers. Two possible

explanations are possible for such relationships. First, research indicates that disadvantaged families often experience more stress and have children with more behaviour problems (Crnic & Greenberg, 1990; Patterson, 1982; Rubin, LeMare & Lollis, 1989; Travillion & Snyder, 1993). These factors may affect caregiver warmth and anger. An alternative interpretation is that parents who cannot send their children to better centres, either due to the cost, obstacles in transporting their children long distances, or not having the luxury of being able to wait until space is available in a higher quality centre, may be forced to use lower quality care which includes educators who engage in less affectionate and more angry interactions with the children. Such caregiver behaviour may lead to behaviour problems in children. Both of these causal paths would explain the relationship between family characteristics, centre quality and caregiver affection and anger with the children.

As expected, when the profit status of the centre was considered, a highly significant relation between quality and auspice was found. On all quality variables (structural, global, and caregiver-child interactions), for-profit centres were, on average, of lower quality compared to non-profit centres. In particular, scores on adult needs were lower, class sizes were larger, and wages were significantly lower in for-profit centres. Parent fees were also higher in for-profit centres, despite the fact that quality was lower. In effect, on average in for-profit centres, educators were less well treated, parents were paying more and getting less, and the children were receiving lower quality care. It was not surprising, then, that angrier and less affectionate educators were found more often in for-profit centres.

The policy implications of this finding may seem obvious. To improve quality of care, eliminate for-profit centres. In fact, the Quebec government has recently decided to stop subsidizing parents who send their children to for-profit centres, apparently in an effort to improve quality. This approach, however, may not be the best solution to the problem given the need to make day care more available to working parents. It should be noted that not all for-profit centres were of lower quality than non-profit centres. In fact, a number of for-profit centres scored quite high on quality variables. Rather than trying to eliminate the spaces provided

by for-profit centres by cutting government subsidies, other ways could be found to ensure higher quality in these and all centres. For example, standards for wages and working conditions should be established and then followed up by better inspection and enforcement methods, especially since even non-profit centres do not all adhere to the standards imposed by the licensing bureau.

Thus far, some correlates of centre quality as defined by regulatable features and global quality ratings of the centres have been examined. Another goal of the present study was to investigate an aspect of quality that has not been the focus of much research: interactions between the children and their educator. In particular, the affective environment of the classroom has received little empirical attention in the literature, despite it being considered a hallmark of centre quality by both researchers and workers in this field, as well as by the parents using these centres. A major concern of most parents is that they might be leaving their children in the hands of uncaring, custodial caregivers. Based on our observations, these fears were largely unfounded. Most classrooms observed were warm, caring environments. On average, educators behaved in a very affectionate manner towards the children. The most common mode of transmitting affection was by smiling, then by offering affectionate words. Physical affection, either passive or active, was not observed frequently. There are three reasons that might explain this ordering of affectionate expression. First, it may be less physically demanding to give a smile or a pleasant word than to physically interact with the children. Second, concerns about allegations of sexual abuse may lead to suspicion and disapproval of physically affectionate relationships between caregivers and children (Hyson et al., 1988). Anecdotal evidence (Hyson et al., 1988) suggests that many educators have become wary of using physical means to express affection, although they may remain convinced of its importance. More distal forms of affection (e.g., smiling, verbalization) will thus be used than the more proximal modes of transmitting affection (e.g., actual physical contact), especially in a school-type setting. Finally, only female educators were included in this study. It is only conjecture, but it may be that male educators may use more physical approaches to showing affection than female educators, just as fathers tend to be more

physically engaging (though not necessarily more affectionate) than mothers in their interactions with their own children (Block, 1982). Conversely, male educators may be hesitant to display physical affection given concerns about allegations of sexual abuse. As more men are entering this field, it will be interesting to explore this issue in future investigations.

In a replication of previous work (Botkin & Twardosz, 1988), individuals in the present study received more affection than groups of children. This is consistent with Schutz's (1979) notion of the dyad being very important in affectionate interactions. According to his framework for describing the development of social relationships, affectionate relationships are possible only if one first feels included (recognized and accepted) and in control (competent and respected) in relationships with others. While both inclusion and control needs can be met in either dyadic or group contexts, Schutz argues that affection needs are far more effectively met within a dyadic interaction.

Given that educators are more likely to give affection to individuals, it seems appropriate that ratios be kept smaller to ensure that each child receives individualized affection and care. However, unexpectedly, it was found that educators in larger classes were generally more affectionate than those in smaller classes. In order to better understand this surprising result, subsequent analyses revealed that better trained educators were found in classes with a higher ratio of children to educator and a somewhat higher ratio of girls to boys. It is possible that less competent caregivers are identified by the centre director and given fewer children or that parents remove their children from a less competent caregiver's class. It may be that more qualified caregivers realize the importance of individualized care and work more effectively at providing this care, despite having larger classes. With respect to the finding that a higher girl to boy ratio was found in larger classes, affection may be more forthcoming with girls than boys as it may be easier to work with girls. Studies from the parental socialization literature generally report that boys are harder to handle and mothers of boys report more stress (Block, 1983; Hoffman, 1984; Maccoby & Jacklin, 1985). Serbin et al. (1973) found that preschool-aged girls showed higher rates of proximity to the teacher than did the boys, and that girls, in fact, received higher rates of

teacher attention (e.g., praise, physical contact and helping) when they were proximal to the teacher, while boys did not. Similarly, Botkin and Twardosz (1988) found that teachers consistently expressed more affectionate behaviours (e.g., smiling, active and passive affectionate physical contact) to girls than to boys. Such gender differences may explain why girls in this study were the recipients of slightly higher levels of affection than boys, though these differences in the present study were not significant. One explanation for our nonsignificant finding may be that boys tend to outnumber girls in day care, and that there were few classes in which girls outnumbered boys. Future research should include an assessment of the children's behaviour in the class in order to better understand the link between children's characteristics and educators' behaviour. It will be difficult, however, to determine if the educator acts a certain way because of the children, or if she influences the children to act a certain way because of her own behaviour. In the present study, only the gender or grouping of the recipients of affection were noted. Perhaps some other aspects of the children (e.g., appearance, charm, etc.) will evoke more affectionate or angry responses from the educator. More sophisticated research designs will be required to disentangle this relationship.

An unfortunate consequence of giving better caregivers larger classes might be that better caregivers will leave the field earlier because of burnout or dissatisfaction with one's job as suggested by Pines and Maslach (1980). Though in the present study, the relationship between burnout and class size was small and nonsignificant ($r = -.12$), there was a significant negative correlation between job rewards and class size ($r = -.29$, $p < .05$). On the basis of the present study's findings, it cannot be ascertained whether or not better educators will decide to find employment in better centres because of the cross-sectional nature of its design. A prospective research design is required to determine the ordering of events over time between affection, anger and class size/ ratio. One implication of these results, however, is that researchers (and parents) not assume that low ratios necessarily imply higher quality. It may be that the ratio/ quality relationship has a bimodal distribution. In some cases lower ratios may imply more individualized, better quality care. In other cases it may imply a less competent caregiver. One

must not just look at the number of children in a certain educator's classroom, but consider why there are fewer children in that particular class.

As expected, anger and affection were negatively correlated with each other and the affection score for educators who expressed some anger was significantly lower than for those who did not show any anger. The majority of the educators did not show any acts of anger during the brief time they were being observed. However, it was noteworthy that 12% of the educators expressed some angry behaviour towards the children while in the presence of outside observers. Given that the sample size of the "angry" group was small (n=9) the data using this measure should be interpreted cautiously. Nevertheless, despite the relatively few acts of anger observed, it is possible that even the rare angry outburst from a caregiver can have a detrimental impact on the children. One might further speculate that if an educator would display some anger while in the presence of observers, she might display even more anger when alone with the children. Accordingly, further examination of the correlates of anger was deemed necessary.

Prior to examining the correlates of affection and anger, a note on the problems inherent in naturalistic studies is warranted. Results from naturalistic observational studies invariably contain some element of observer reactivity (Elmes, Kantowitz & Roediger, 1995). In any observational study, the reactions of the participants to the presence of the observers is worthy of concern. The participants in this study were aware that they were being observed, since the observations took place in the close quarters of their classroom, despite efforts of maintaining a low profile while observing. The fact that there was substantial variance in the educators' behaviours (though perhaps less so for negative behaviours), suggests that the effects of awareness may not have been prohibitively large. Perhaps future observational studies of caregivers could be conducted over a period of time, including several observation sessions, perhaps using less intrusive video surveillance system, in order to reduce reactivity and to increase the likelihood that the full range of typical interactions is being observed.

Determinants of affectionate and angry interactions between the caregiver and the children

Though anger and affection were negatively related, the next goal of this investigation was to determine if the same variables would be directly related to both of these educator behaviours. Reference to Figure 1 will assist in following the subsequent findings discussed in this section. Two approaches were used to explore the direct relationship with affection: (a) mean differences comparing educators with high affection scores to educators with lower affectionate scores based on a median split, to see if they differed with respect to background characteristics, personal resources, work environment, or job perceptions, and (b) correlational analyses, preserving the continuous nature of the affectionate scores as the dependent variable and including the variables in each domain as the predictor variables. Similar findings emerged using both statistical approaches. Consistent with previous research (Pines & Maslach, 1980; Ruopp et al., 1979; Whitebook et al., 1990), work environment differentiated more affectionate educators from less affectionate educators. In particular, more affectionate educators had their needs better met in the work place, more materials to work with, lower turnover rates in the centre, and fewer children from disadvantaged homes in their centres. None of the other domains differentiated more affectionate from less affectionate groups.

Affection may be related more to work environment than to other domains in that in a better environment, the educator is at liberty to provide a caring atmosphere for the children, rather than engaging in a behaviour management role. As it is still empirically unknown as to whether a better centre will create a better educator, or if better educators do, in fact, obtain jobs in better centres, it is important that causation is not confused with correlation. To better answer the question of causality, a careful and systematic manipulation of the environment must be undertaken, and ideally be able to randomly assign recently trained educators to good or poor environments. These tasks will be both ethically and pragmatically difficult to accomplish. One approach, however, that would be consistent with an ethical approach is to conduct studies in which the work place quality is improved, and to determine whether these improvements lead to better caregiver behaviours.

It is not too surprising given findings from previous research (Pence & Goelman, 1991; Rosenthal, 1991) that caregiver background characteristics such as marital status or SES did not directly relate to caregiver behaviour. More surprising, however, was that variables in the personal resources domain such as self-esteem, self-worth, home stress, and social support did not directly relate to either affection or anger. This finding appears counterintuitive to many who would expect that educator warmth are inherent aspects of the caregiver not readily amenable to change. This finding suggests the importance of providing educators with good quality work environments, in order that the children they care for might receive high quality affective interactions with their caregiver.

The next question asked was which domains directly related to angry behaviour by the educator. Only the grouping of variables in the Job Perceptions domain resulted in an overall significant association with the anger scores. Specifically, caregivers who had higher anger scores reported having fewer job rewards, more job concerns, and less supervisor support. Further analysis of the subscales of the job rewards and concerns measures suggested that the "common denominator" across all three measures was the quality of the relationship the educator had with her supervisor. Thus, a centre may be of lower quality (e.g., fewer materials, higher turnover rates, more disadvantaged children, etc.) but that in itself will not create an angry educator. However, if the caregiver feels that she is unsupported and being treated unfairly at her job, her negative feelings and anger expression to the child are likely to increase.

Analyses exploring indirect effects on anger further helped to illuminate the process by which a caregiver would be more likely to express anger to the children. Though work environment did not directly relate to anger, aspects of the work environment did correlate with Job Perceptions which then correlated with anger. Centres that were for-profit and had larger classes, lower wages, and more children on subsidies also had educators who perceived they had fewer job rewards, less job satisfaction, less supervisor support, more burnout, and more job concerns. These findings support the expected view that the educator's work environment will exert an influence on her satisfaction at the workplace. Furthermore, the first three variables (for-profit

centres, larger classes, and lower wages) can easily be seen as resulting in a sense of being taken advantage of, especially if the educator feels that others are making a profit from her hard labour. This relationship lends support to the notion that if the educator is in a centre where she feels undervalued and less supported by her supervisor, expressions of anger directed at the children will increase.

There are two interpretations that might explain the relation between percent of children on subsidies and job perceptions. First, it is possible that children from more disadvantaged homes bring with them a host of behavioural problems to the daycare setting, and this may result in the educator perceiving her job as more stressful, again underscoring the importance of the children's characteristics on the educator's work place environment. The second interpretation may reflect difficulties caregivers may have when working with parents from a lower socioeconomic status, who are more likely to be single, less communicative with caregivers, hold more old fashioned child rearing values, and have more problems with centre rules (Kontos, 1989). It has been found that close communicative exchanges between parents and caregivers have distinguished caregivers' evaluations of parents held in high versus low esteem (Kontos & Wells, 1986). These authors speculated that more personal communication patterns of the group held in higher esteem may produce a halo effect that attenuates negative staff reactions usually associated with such things as failure to pick up a sick child promptly. If the educator feels less support and respect from the parents (a common complaint mentioned in the educators interviewed in the present study) and more frustration with the parents and the children, it stands to reason that these negative feelings might increase feelings of anger. Of course, the converse may also be true. Educators more prone to anger may be less skilled at dealing with the parents, which then results in more negative feelings between the educator and parents.

In summary, it appears that the explanation that best accounts for caregiver anger with the children is whether or not the educator perceives she is in a supportive environment. This is an internal evaluation made by the caregiver, affected to some degree by objective measures of the quality of the place in which she works. It is noteworthy that the variables reflecting daycare

characteristics are based on our observations and not on the educator's reporting, suggesting that these relationships are not due to her exaggerating the problems of the centre in accordance with her feelings about her job.

There was also a highly significant relationship between all the variables in the Job Perceptions and Personal Resources domains. Educators who reported a lower sense of well-being, lower self-esteem, less social support, and more hassles at home also perceived they had fewer job rewards, less job satisfaction, less supervisor support, more burnout, and more job concerns. These findings support the expected view given by Bronfenbrenner (1986) that the educator's perceptions of her personal resources outside of work and her satisfaction at the workplace are related. Shared method variance may have inflated the relations among the variables as the data in these two domains involved the same basic method of assessment, namely, self-report. It is possible that these measures are tapping into a particular personality construct, such as negative affectivity (Brief et al., 1988), and that negative affectivity may underlie the high correlations between personal resources and job perceptions. It should be noted that most educators completed these measures on the same day, which may have further increased the correlations between these measures. Again, it would have been preferable to assess the educators over a period of time using a repeated measures design to better clarify these relationships. Nevertheless, if high negative affective people accentuate the negative, they are more likely to experience significant levels of distress, both at work and at home, resulting in more expression of anger. It is also possible that the educators who are experiencing personal problems are lacking in interpersonal skills, making it difficult for them to seek and/or receive support.

One final significant finding of the model was the relationship of place of birth and work environment. While findings from the present study are consistent with previous research (Pence & Goelman, 1991; Rosenthal, 1991) who have not found relations between the *family* day care educator's marital status, age, experience, or SES and the quality of her caregiving practices, place of birth was found in the present study to be related to the quality of the centre. In the

present study, it was found that women who were born outside of Canada were older ($r = .48$, $p < .01$), earned less money ($r = -.26$, $p < .05$), were employed at lower quality centres based on the ECERS score ($r = -.37$, $p < .01$) than educators born in Canada, though they did not have larger classes, nor did they display less affection or more anger ($p > .05$). Few educators, however, were born outside of Canada so it is difficult to make strong interpretations about this findings.

If the model presented in Figure 1 is correct, then it suggests that different sets of variables lead to warmth and anger. The work environment had a greater impact on caregiver's affectionate behaviour, whereas more internal, negative perceptions seem necessary for the expression of anger in the classroom to occur. Improvements in the work environment might increase warm interactions directly by liberating the educator's resources in order that she can devote more of her energy towards being affectionate with the children. Changes in the work environment, however, should only decrease the educator's expressions of anger if she perceives herself as being supported in her job. If this result is valid, this suggests that other changes in the work place are needed to decrease educators' expressions of anger, specifically in terms of improving relations between caregivers and their directors. Future research should also consider the role played by co-worker support, especially under conditions where the relations between the educators and their supervisors are poor.

Investigators have frequently found a strong relation between specialized training and caregiving practices. Caregiving practices have typically included her ability to educate, discipline and socialize the children in her care, though no previous study specifically observed affectionate or angry behaviours. Given the preponderance of findings in the literature relating training to better caregiving practices, and the policy implications resulting from such findings, it is important to discuss why a direct effect of specialized training on either affection or anger was not found.

Training and caregiver affectionate and angry behaviour

Despite some inconsistencies in the literature (Kontos, 1991; Pence & Goelman, 1987) most research suggested that educators with specialized training in early childhood education provided a more appropriate developmental curriculum (Arnett, 1989; Berk 1985; Howes et al., 1992; Kaplan & Conn, 1984; Kontos, 1994). However, no study to date has specifically examined the caregiver's affectionate or angry behaviour with the children as a function of training. Based on trends in the literature for other educator behaviours, it was expected that increases in affection and decreases in anger would result as the educator's training in early childhood education increased. This hypothesis was not supported by the data. There are a number of explanations to account for the failure to find a direct link between training and affective behaviours in the current study.

The fact that affective behaviours rather than curriculum was the dependent variable in this study may have made it difficult to uncover the effects of training. It is possible that one cannot equate the effects of training on developmental appropriateness compared with affection or anger. While researchers consistently agree that more training is needed to improve developmentally appropriate caregiving practices, there is evidence to support the contention that extensive training is less crucial for sensitive and affectionate caregiving (Whitebook et al., 1990). For example, Berk (1985) found that although educators with at least two years of college showed more educator direction and behaviours aimed at increasing children's verbal skills than did educators with only a high school diploma, there were no differences between groups in the amount of praise, affection or comfort given to the child. Results from two intervention studies further suggested that less intervention may be required to influence affectionate caretaking, whereas more intervention is needed to effect change in developmentally appropriate activities. Arnett (1989) studied child rearing practices in day care centres in Bermuda, where educators were generally poorly trained, and found that brief training was related to less punitiveness and detachment, and to more warmth and enthusiasm in the caregiver's interactions with children. Kaplan and Conn (1984) also found that brief training sessions seemed to have a greater effect on

caregiver's nurturing behaviours than on her direct teaching efforts in the areas of cognitive and language development. They suggested that nurturing behaviours may be more amenable to change after short-term training than the more verbal, teaching functions of the caregiver role.

As most of the educators in the present study were relatively well-educated, another reason why the effects of training on caregiver behaviour did not emerge was that there may have been insufficient numbers of participants with low training to detect differences between groups. Nearly half of the educators had graduated from junior college with specialized training in early childhood education, and more than a third of the remaining educators had obtained a university degree. In total, 88% had obtained at least a college degree. In studies that have not found an association between training and caregiver behaviour, either the range of training was restricted or the power of the study was insufficient to detect differences. In two separate studies, caregiver qualifications did not influence praising of the children (Kontos, 1991) nor the quality of family day care (Kontos, 1994), however a small sample size and a restricted range of training may have accounted for these nonsignificant findings. Similarly, in a Canadian study, a non-significant relation was found between caregiver education and positive interactions with the children when the educators were generally highly trained (Pence & Goelman, 1991).

Counter to the idea that differences in dependent variables or a small, homogenous sample limited the possibility of finding training effects, it was found that less specialized training was significantly associated with lower centre quality, such as working in centres where educators' needs were not being met, insufficient materials were provided, more children were on subsidies, parent fees were higher, and salaries were lower. As already discussed, it appears that training is indirectly related to caregiver behaviour via other routes, specifically the work environment. As there was enough power to detect these findings, a closer examination of this variable in conjunction with other variables was undertaken.

Given that the studies linking education with behaviour of the educator are all correlational, the fact remains that better educated caregivers may differ from those with less education on other factors such as financial status, social support, self esteem or intelligence, factors that might

influence their caregiving practices independent of their training. It is possible that caregivers with certain personal characteristics both seek out training and tend to interact with children in more supportive or stimulating ways. Training may be influential on affection or anger in combination with other variables.

To better understand the conditions under training might have contributed to expressions of anger and affection, a final goal of the current investigation was to examine training in conjunction with other variables. The aim was to test two hypotheses about how interactions among variables might be influential in caregiver affectionate and angry behaviour. The first hypothesis was the "dual-risk hypothesis", which stipulated that conditions considered indicators of poor adjustment or environment would place the educator at risk when combined with poor training. The second hypothesis was the "compensatory hypothesis" which stipulated that when risk factors were present, then certain conditions such as high levels of training would buffer the educator's experience and foster more affectionate behaviour.

Examination of the means indicated a highly consistent pattern compatible with expectations, namely, the lowest amount of affection and highest levels of anger were obtained under "dual risk" conditions, where one of the risks was low training. For example, the mean affection score was the lowest and anger score the highest when the caregiver was both poorly trained and had low self-esteem. The results suggest that educators who are not sufficiently trained may be less affectionate and more angry with the children when another risk factor is present. Furthermore, higher levels of affection and lower levels of anger were noted for higher levels of training, even under the above adverse conditions, suggesting that training can serve as a protective factor from negative influences.

In sum, initial findings indicated that training was not *directly* related to affection or anger, and that its importance lies with it being a self-selection factor in that a better trained educator will more likely be found in higher quality centres. However, a closer inspection of the data revealed that training did, in fact, interact with other variables in the outcome of affective caregiver behaviours. Training appears to be important not just for planning a good curriculum, but also to

help educators deal with the socio-emotional development of the children by influencing her levels of anger and affection. The way she handles stress, poor working conditions, etc., will interact with her training in influencing her affective behaviours.

The findings that went against expectations in which better training did not compensate for adverse conditions are also interesting. When examining the interactions when low training did not decrease affection or increase anger, out of the 20 comparisons made, only three emerged in an unexpected direction. Higher levels of affection were noted when job rewards were low, and class size and ratios were high. These results may be due to chance, given that many variables were included in this part of the analysis. However, there are interesting reasons why these results may have occurred that require comment. As previously discussed, class size/ ratios may not operate in the usual manner (i.e., low ratios may reflect either good or poor caregiving practices), and this notion was supported by the other unexpected finding that better trained educators had higher levels of affection in larger classes than their more poorly trained counterparts. It is important to note, however, that when the educator was poorly trained, larger classes and ratios resulted in higher anger scores. These findings lend further support to the idea that even committed, caring educators who are in poor working situations may, over time, become irritated with the children despite efforts to be affectionate if they do not have the backing of adequate training and/or are less inclined to seek out more training.

Another exception involved experience. It is believed that experience might lead to more knowledge and skills in working with children, however it can also result in more resentment and burnout over time in a field that does not adequately compensate (both financially and in terms of respect) the caregiver for her efforts. In support of the latter view, though levels of affection were always better if the educator was better trained at any level of experience, her anger scores changed curvilinearly with increasing levels of experience. No anger was exhibited at low levels of experience, perhaps because the educator is still new and enthusiastic about her job. The highest level of anger was found with educators with medium amounts of experience. It is possible that educators with such high levels of anger after a few years decide to leave the field,

and this results in a decrease of anger observed at the highest levels of experience. Again, one cannot assume that years of experience will result in better caregiving practices, especially when considering the expression of anger.

In support of the previous finding, it was also found that less trained educators who received lower wages were less angry than their highly trained counterparts. Again, because financial compensation does not adequately reflect either the caregiver's level of education or time spent in the field, it is not surprising that few educators in this field are over 30 years old. An educator who has invested time, money and effort to become a professional in her chosen field, only to be paid less than a warehouse worker, might well become disillusioned and discouraged about her work. It should be noted, however, that no highly trained educator reported high feelings of burnout, while 3 poorly trained educators reported very high levels of burnout, suggesting that training can help to buffer the educator from experiencing burnout.

In summary, results from this study suggest that though training may not emerge directly as a significant factor in the display of affection or anger, (a) training may have an indirect relation with these behaviours by operating *through* the work environment, (b) under closer examination, educators who are not sufficiently trained may be more angry and less affectionate with the children when another risk factor is present, and (c) higher levels of affection and lower levels of anger were noted for higher levels of training when under adverse conditions, suggesting that training may serve as a protective factor from negative influences.

Directions for future research and contributions of the present study

Using an ecological approach to study caregiver behaviour requires the inclusion of many variables in one study. The current study attempted to include variables that according to ecological theory and past research have been found to be important contributors to educator behaviours. In summary, the only direct predictor of affection was the objective measures of the quality of the educator's workplace environment. The only direct predictor of anger was a more internal evaluation made by the caregiver of how supportive she perceived this environment. The results of the hypothetical model support Bronfenbrenner's assertion that the world in which the

educator inhabits, namely the quality of the centre in which she works, as well as the world external to the day care centre, such as how hassled or supported she reports being at home, seem to relate to the way in which she perceives her job and subsequently, to how she behaves with the children. Personal characteristics of the educator, such as how well-trained she is in early childhood education, where she is born, and how much self-esteem she possesses, are more distal, though relevant factors in how she will behave with the children. The current study incorporates the microsystem model (that the caregiver brings with her a history of experiences and personal development and is contextually embedded in the daycare centre as well as in her own home) a mesosystem model (that her experiences on the job and at home will be mutually influential), the exosystem models (that characteristics of the families using the centre will influence the educator's behaviour) and a person-process-context model (interactions between the educator's training and a variety of contexts/ personal characteristics will be related to her behaviour in the daycare).

The most obvious limitation of the present investigation was its cross-sectional / one - shot approach. Future research should attempt to replicate this study using a prospective design with a larger number of educators, preferably randomly sampled from the population, and to observe whether a path analysis will bear out similar findings. A larger sample size will be needed in order to conduct structural equation modeling. Such modeling will also allow for more reliable testing of the interactions among variables, as the approach in the present study yielded very important findings when different levels of training were combined with different levels of other variables. Without the risk model, important relationships with training may have been overlooked. Structural equation modeling would allow for examination of the system as a whole and also permit testing of interactions.

Despite certain limitations, this study offers important contributions to the literature. The current research, using an ecological approach to examine affection and anger, was instrumental in adding a missing piece of the necessary groundwork to study the course of educator affective behaviours and to advocate for the importance of studying many areas that might influence these

behaviours. Although several studies have examined univariate relationships among variables used in this study, the current work extended past research that has examined the relationships between one or two variables to look at several domains. In addition, many sources and methods to gather the information were capitalized upon, helping to reduce the problem of shared method variance. The present study also marked the first empirical exploration in developing a model postulating factors that would be related specifically to affection and anger. While conclusions regarding causation cannot be stated here, the present study was successful in highlighting some of the variables that have direct and indirect influences on the educator's affective behaviour and provides important directions for future studies, particularly with respect to the different pathways in which affection and anger may emerge and the use of ecological theory to guide research.

References

Acker, L., Acker, M. & Pearson, D. (1973). Generalized imitative affection: Relationship to prior kinds of imitation training. Journal of Experimental Child Psychology, 16, 111-125.

Alvarez, W. (1985). The meaning of maternal employment for mothers and their perceptions of their three year old children, Child Development, 56, 350-360.

Anderson, C. W., Nagle, R. J., Roberts, W. A. & Smith, J. W. (1981). Attachment to substitute caregivers as a function of center quality and caregiver involvement. Child Development, 52, 53-61.

Andersson, B.-E. & Kihlblom, U. (July, 1989). Effects of child care and mother's employment on children's socioemotional and intellectual competence in Swedish schoolchildren. Paper presented at the Tenth Biennial Meetings of ISSBD, Jyväskylä, Finland.

Arnett, J. (1989). Caregivers in day-care centers: Does training matter? Journal of Applied Developmental Psychology, 10, 541-552.

Baruch, Bierner & Barnett (1987). Women and Gender in research on work and family stress. American Psychologist, 42, 130-136.

Basic Behavioral Science Task Force of the National Advisory Mental Health Council, (1996). Basic behavioral science research for mental health, Family Processes and Social Networks. American Psychologist, 51, 622-630.

Belsky, J. (1988). The "effects" of infant day care reconsidered. Early Childhood Research Quarterly, 3, 235-272.

Belsky, J. (1993). Etiology of child maltreatment: A developmental-ecological analysis. Psychological Bulletin, 114, 413-434.

Belsky, J. & Steinberg, L. D. (1978). The effects of day care: A critical review. Child Development, 49, 929-949.

Belsky, J. (1984). The determinants of parenting: A process model. Child Development, 55, 83-96.

Berk, L. E. (1985). Relationship of caregiver education to child-oriented attitudes, job satisfaction, and behaviors toward children. Child Care Quarterly, 14, 103-129.

Bjorkman, M. S., Poteat, G. M., & Snow, C. W. (1986). Environmental ratings and children's social behavior: Implications for the assessment of day care quality. American Journal of Orthopsychiatry, 56, 271-277.

Blascovich, J. & Tomaka, J. (1991). Measures of self esteem. In John Robinson, Phillip Shaver, & Lawrence Wrightsman (Eds.) Measures of Personality and Social Psychological Attitudes, Volume 1. UK: Academic Press. (Chapter 4), pp. 115-160.

Bowlby, J. (1951). Maternal care and mental health. Geneva: World Health Organization.

Botkin, D. & Twardosz, S. (1988). Early childhood teachers' affectionate behavior: Differential expression to female children, male children, and groups of children. Early Childhood Research Quarterly, 3, 167-177.

Botkin, D., Townley, K. F., & Twardosz, S. (1991). Children's affectionate behavior: Gender differences. Early Education and Development, 2, 270-286.

Bredekamp, S. (1986).The reliability and validity of the Early Childhood Classromm Observation Scale for Accrediting Early Childhood programs. Early Childhood Research Quarterly, 1, 103-118.

Brief, A. & Roberson, L. (1989). Job attitude organization: An exploratory study. Journal of Applied Social Psychology, 19, 717-727.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. Developmental Psychology, 22, 723-742.

Bronfenbrenner, U. & Crouter, A. C. (1982). Work and family through time and space. In S.B. Kamerman & C.D. Hayes (Eds.) Families that work: Children in a changing world (pp.39-83). Washington D.C.; National Academy of Sciences.

Brooke, P. P., Russell, D. W., & Price, J. L. (1988). Discriminant validation of measures of job satisfaction, job involvement, and organizational commitment. Journal of Applied Psychology, 73, 139-145.

Burts, D. C. , Hart, C. H., Charlesworth, R. & Kirk, L. (1990). A comparison of frequencies of stress behaviors observed in kindergarten children in classrooms with developmentally appropriate versus developmentally inappropriate instructional practices. Early Childhood Research Quarterly, 5, 407-423.

Canadian National Child Care Study. Canadian Child Care in Context: Perspectives from the Provinces and Territories. A. R. Pence (Ed.). Health and Welfare Canada or Statistics Canada.

Caplan, R., Cobb, S., French, J.R.P., Harrison, R., and Pinneau, S.R. (1980). Job demands and worker health. Ann Arbor, MI: Institute for Social Research , (cited in Miller et al. 1990).

Chamberlain, K. & Zika, S. (1990). The minor events approach to stress: Support for the use of daily hassles. British Journal of Psychology, 81, 469-481.

Clarke-Stewart, K. (1988). "The "effects" of infant day care reconsidered" reconsidered: Risks for parents, children and researchers. Early Childhood Research Quarterly, 3, 293-318.

Cohen, S., Kamarck, T.,& Mermelstein, R. (1983). A Global Measure of Perceived Stress. Journal of Health and Social Behavior, 24, 385-396..

Crockenberg, S. & Litman, C. (1991). Effects of maternal employment on maternal and two-year-old child behavior. Child Development, 62, 930-953.

Cummings, E. M., Vogel, D., Cummings, J. S., El-Sheikh, M. (1989). Children's responses to different forms of expression of anger between adults. Child Development, 60, 1392-1404.

Cummings, E. M. & Vittemberga, G. (April, 1991). Contexts of Children's Exposure to Adults' Anger: Day Care and the Way Conflicts End. Biennial meeting of the Society for Research in Child Development, Seattle, WA.

DeLongis, A, Folkman, S, Lazarus, RS.(1988). The Impact of Daily Stress on Health and Mood: Psychology and Social Resources as Mediators. Journal of Personality and Social Psychology, 54, 486-495.

Dion, G. (1989). Le burnout chez les éducatrices en garderie: Proposition d'un modele théorique. Apprentissage et Socialization, 12, 205-214.

Dunham, R. & Herman, J. (1975). Development of a female faces scale for measuring job satisfaction, Journal of Applied Psychology, 60, 629-631

Endsley, R. C. & Minish, P. A. (1989). Parent-staff communication in day care centers during morning and afternoon transitions. Early Childhood Research Quarterly, 6, 119-135.

Estrada, P., Arsenio, W. F., Hess, R. D. & Holloway, S. D. (1987). Affective quality of the mother-child relationship: Longitudinal consequences for children's school-relevant cognitive functioning. Developmental Psychology, 23, 210-215.

Farquhar, S. E. (1990). Quality in early education and care: What do we mean? Early Child Development and Care, 64, 71-83.

Folkman S, Lazarus RS, Dunkel-Schetter C, DeLongis A, Gruen R. J.(1986). Dynamics of a Stressful Encounter: Coghnitive Appraisal, Coping, and Encounter Outcomes.Journal of Personality and Social Psychology, 50, 992-1003.

Folkman, S, Lazarus R.S. (1980). An Analysis of Coping in a Middle-Aged Community Sample (1980). Journal of Health and Social Behavior , 21, 219-239.

Folkman, S. & Lazarus, R., Gruen and DeLongis.(1986). Apparaisal, Coping, Health Status, and Psychological Symptoms. Journal of Personnality and Social Psychology, 50, 571-579.

Friendly, M. (1994). Child care policy in Canada: Putting the pieces together. Addison-Wesley Publisher, Toronto.

Fuqua, R. & Couture, K. (1986). Burnout and locus of control in child day care staff. Child Care Quarterly, 15, 98-109.

Galluzzo, D. C., Matheson, C. C., Moore, J. A., & Howes, C. (1988). Social orientation to adults and peers in infant child care: Special issue: Infant daycare ll. Empitical studies. Early Childhood Research Quarterly, 3, 417-426.

Goelman, H. & Pence, A. (1987). Who cares for the child in day care? An examination of caregivers from three types of care. Early Childhood Research Quarterly, 2, 315-334.

Goossens, F. A. & van IJzendoorn, M. H. (1990). Quality of infants' attachments to professional caregivers: Relation to infant-parent attachment an.d day-care characteristics. Child Development, 61, 832-837.

Gruen, R.J., Folkman, S. & Lazarus, R. (1988). Centrality and individual differences in the meaning of daily hassles. Journal of Personality, 56, 743-762.

Grych, J. & Finchman, F. (1990). Marital conflict and children's adjustment: A cognitive-contextual framework. Psychological Bulletin, 108, 267-290.

Harms, T. & Clifford, R.(1980). Early childhood environment rating scale. New York: Teachers College Press.

Harris, T., Brown, G., & Bifulco, A. (1987). Loss of a parent in childhood and adult psychiatric disorder: The role of social class position and premarital pregnancy. Psychological Medicine, 17, 163-183.

Hayes, C., Palmer, J. & Zaslow, M. (1990). Who cares for America's children: Child care policy for the 1990's, National Academy Press, Washington, D.C.

Health and Welfare Canada (1992). Status of Day Care in Canada. Ottawa: Health and Welfare Canada, National Child Care Information Centre, Child Care Programs Division, Social Programs Branch (Now Human Resources Canada).

Hoffman, L. W. (1989). Effects of maternal employment in the two-parent family, American Psychologist, 44, 283-292.

Hollingshead, A.B. (1975). Four factor index of social status. Unpublished manuscript. New Haven: Yale University, Department of Sociology.

Holloway, S. D., Gorman, K. S., & Fuller, B. (1988). Child-rearing beliefs within diverse social structures: Mothers and day-care providers in Mexico. International Journal of Psychology, 23, 303-317.

Holloway, S. D. & Reichhart-Erickson, M. (April, 1989). The relationship of day care quality to children's social competence: Some effects of sex differences. Presented at the biennial meeting of the Society for Research in Child Development, Baltimore, MD.

Howe, N. & Jacobs, E. (1995). Child care research: A case for Canadian national standards. Canadian Psychology, 36, 131-148.

Howes, C. (1987). Social competency with peers: Contributions from child care. Early Childhood Research Quarterly, 2, 155-167.

Howes, C. (1990). Can the age of entry into child care and the quality of child care predict adjustment in kindergarten? Developmental Psychology, 26, 53-57.

Howes, C. & Hamilton, C. (1993a). The changing experience of child care: Changes in teachers and in teacher - child relationships and children's social comprehension with peers. Early Childhood Research Quarterly, 8, 15-32.

Howes, C., Rodning, C., Galluzzo, D. C., & Myers, L. (1988). Attachment and child care: Relationships with mother and caregiver. Early Childhood Research Quarterly, 3, 403-416.

Howes, C., & Olenick, M. (1986). Family and child care influences on toddler's compliance. Child Development, 37, 202-216.

Howes, C. & Rubenstein, J. (1985). Determinants of toddlers' experience in day care: Age of entry and quality of setting. Child Care Quarterly, 14, 140-151.

Howes, C. & Stewart, P. (1987). Child's play with adults, toys, and peers: An examination of family and child-care influences. Developmental Psychology, 23, 423-430.

Howes, C., Phillips, D. A., & Whitebook, M. (1992). Thresholds of quality: Implications for the social development of children in center-based child care. Child Development, 63, 449-460.

Howes, C., Matheson, C. C. & Hamilton, C. E. (1994). Correlates of children's relationships with peers. Child Development, 65, 264-273.

Howes, C. & Hamilton, C. E. (1992). Teachers: Stability and concordance with parental attachments. Child Development, 63, 867-878.

Howes, C. & Hamilton, C. E. (1992). Children's relationships with caregivers: Mothers and child care teachers. Child Development, 63, 859-866.

Howes, C., Hamilton, C. E., & Matheson, C. C. (1994). Children's relationships with peers: Differential associations with aspects of the Hyson, M. C. & Cone, J. (1989). Giving form to feeling: Emotions research and early childhood education. Journal of Applied Developmental Psychology, 10, 375-399.

Hyson, M. & Cone, J. (1989). Giving form to feeling: Emotions research in early childhood education. Journal of Applied Developmental Psychology, 10(3), 375-399.

Hyson, M. (1982). "Playing with kids all day": Job stress in early childhood education. Young Children, 37, 25-32.

Hyson, M. C., Whitehead, L. C., & Prudhomme, C. M. (1988). Influences on attitudes toward physical affection between adults and children. Early Childhood Quarterly, 3, 55-75.

Jacobs, E. & White, D.R. (1994).The relationship of child care quality and play to social behaiviour in the kindergarten . In Hillel Goelman, Ellen Vineberg Jacobs, (Eds) Children's play in child care settings, SUNY Series, Children's Play in Society, pp85-101. State University of New York Press, Albany.

Jacobs, E. V., Selig, G., & White, D. R. (1995). Classroom behaviour in grade one: Does the quality of pre-school day care experience make a difference? Canadian Journal of Research in Early Childhood Education, 3, 89-100.

Kagan, S. & Newton, J. (1989). Public policy report: For profit and nonprofit child care: Similarities and Differences. Young Children, 45, 4-10.

Kamerman, S. & Kahn, A. (1981). Child care, family beneftis, and working parents: A study in comparative policy. New York: Columbia University Press.

Kaplan, M. G. & Conn, J. S. (1984). The effects of caregiver training on classroom setting and caregiver performance in eight community day care centers. Child Study Journal, 14, 79-93.

Kelloway, E. K. & Barling, J. (1991). Job characteristics, role stress and mental health. Journal of Occupational Psychology, 64, 291-304.

Kibria, N., Barnett, R., Baruch, G., Marshall, N., & Pleck, J.(1990). Homemaking-role quality and the psychological well-being and distress of employed women, 327-347.

Kisilevsky, B. S., Stack, D. M., & Muir, D. W. (1991). Fetal and infant response to tactile stimulation. In M.J.S. Weiss & P.R. Zelazo (Eds.), Newborn attention: Biological constraints and the influence of experience. Norwood, N.J.: Ablex.

Kontos, S. (1990). Child care quality, family background, and children's development. Early Childhood Research Quarterly, 6, 249-262.

Kontos, S. (1991). Relationship of caregiver qualifications, sterss, and working conditions to children's cognitive and social development. Society for Research in Child Development, Seattle, WA

Kontos, S. (1994). The ecology of family day care. Early Childhood Research Quarterly, 9, 87-110.

Kontos, S. & Stremmel, A. J. (1988). Caregivers' perceptions of working conditions in child care environment. Early Childhood Research Quarterly, 3, 77-90.

Kontos, S. & Dunn, L. (1989). Attitudes of caregivers, maternal experiences with day care, and children's development. Journal of Applied Developmental Psychology, 10, 37-51.

Kontos, S. & Wells, W. (1986). Attitudes of caregivers and the day care experience of families. Early Childhood Research Quarterly, 1, 47-67.

Kunin,T. (1955). The construction of a new type of attitude measure, Personnel Psychology, 8, 65-78.

Lennon (1987) Sex Differences in Distress, the Impact of Gender and Work Roles. Journal of Health and Social Behavior, 28, 290-303.

Lamb, M. E., Hwang, C. P., Broberg, A., & Bookstein, F. L. (1988). The effects of out-of-home care on the development of social competence in Sweden: A longitudinal study. Early Childhood Research Quarterly, 3, 379-402.

Lamb, M. E., Hwarng, C. P., Bookstein, F. L., Broberg, A., Hult, G. & Frodi, J. (1988). Determinants of social competence in Swedish preschoolers. Developmental Psychology, 24, 58-70.

Lovass, O., Schaefer, B. & Simmons, J.(1965). Experimental studies in childhood schizophrenia: Builing social behaviour in autistic children by the use of electric shock. Journal of Experimental Research in Personality, 1, 99-109.

Love, J. M. (March, 1993). Does children's behavior reflect day care classroom quality? Paper presented at the biennial meeting of the Society for Research in Child Development, New Orleans, March 26.

MacDonald, K. (1992). Warmth as a developmental construct: An evolutionary analysis. Child Development, 63, 753-773.

Manlove, E. E. (1993). Multiple correlates of burnout in child care workers. Early Childhood Research Quarterly, 8, 499-518.

Marshall, N. & Barnett, R. (1990). Development if the Job-Role Quality scales, Working paper No.207. Welsley College, 1-23.

Maslach, C. & Jackson, S.(1981). The measurement of experienced burnout. Journal of Occupational Behaviour, 2, 99-113.

Maslach, C. & Pines, A. (1977). The burnout syndrom in the day care setting. Child Care Quarterly, 6, 100-113.

McBride, S. (1990). Maternal Moderators of Child Care: The Role of Maternal Anxiety. New Directions For Child Development, 49, 53-71.

McCartney, K. (1988). Effect of quality of day care environment on children's language development. Developmental Psychology, 20, 244-260.

McCartney, K., Scarr, S., Phillips, D., Grajek, S., & Schwarz, J. C. (1982). Environmental differences among day care centers and their effects on children's development. In E. Zigler & E. Gordon (Eds.) Day Care: Scientific and Social Policy Issues (pp. 126-151). Boston Press: Auburn House.

McCartney, K., Scarr, S., Phillips, D., & Grajek, S. (1985). Day care as intervention: Comparisons of varying quality programs. Journal of Applied Developmental Psychology, 6, 247-260.

McEvoy, M. A., Nordquist, V. M., Twardosz, S., Heckman, K. A., Wehby, J. H. & Denny, R. K. (1988). Promoting autistic children's peer interaction in an integrated early childhood setting using affection activities. Journal of Applied Behavior Analysis, 21, 193-200.

McFall, B. & McDonel, E. (1986). An information -processing theory of the measurement of social competence. In William O'Donohue, Leonard Kramer, (Eds) Theories of Behavior Therapy: Exploring Behaviour Change, pp 415-443. APA, Washington.

McMullen, M. B. & Krantz, M. (1988). Burnout in day care workers: The effects of learned helplessness and self-esteem. Child & Youth Care Quarterly, 17, 275-280.

Melhuish, E. C., Mooney, A., Martin, S. & Lloyd, E. (1990). Type of childcare at 18 months - I. Differences in interactional experience. Journal of Child Psychology/Psychiatry, 31, 849-859.

Miller, K. I., Ellis, B. H., Zook, E. G. & Lyles, J. S. (1990). An integrated model of communication, stress, and burnout in the workplace. Communication Research, 17, 300-326.

Montgomery, L. & Seefeldt, C. (1986). The relationship between perceived supervisory behavior and caregivers' behavior in child care. Child Care Quarterly, 15, 251-259.

Moorehouse, M. (1991). Linking maternal employment patterns to mother-child activities and children's social competence, Developmental Psychology, 27, 295-303.

Mullis, R. L., Smith, D. W. & Vollmers, K. E. (1983). Prosocial behaviors in young children and parental guidance. Child Study Journal, 13, 13-21.

NICHD Early Child Care Research Network (April, 1996). Infant child care and attachment security: Results of the NICHD study of early child care. Symposium, International Conference on Infant Studies, Providence, RI.

Palmérus, K. & Hägglund, S. (1991). The impact of children/caregiver ratio on activities and social interaction in six day care centre groups. Early Child Development and Care, 67, 29-38.

Patterson, C. J., Cohn, D. A. & Kao, B. T. (1989). Maternal warmth as a protective factor against risks associated with peer rejection among children. Development and Psychopathology, 1, 21-38.

Pence, A. R. & Goelman, H. (1987). Who cares for the child in day care? An examination of caregivers from three types of care. Early Childhood Research Quarterly, 2, 315-334.

Pence, A. R., & Goelman, H. (1991). The relationship of regulation, training and motivation to quality of care in family day care. Child and Youth Care Forum, 20, 22-33.

Pepper, S. & Stuart, B. (1992). Quality of family day care in licensed and unlicensed home. The Canadian Journal of Research in Early Childhood Education, 3, 109-118.

Phillips, D. & Howes, C. (1987). Indicators of quality in child care: review of research. In D.A. Phillips (Ed.) Quality of child care: What does research tell us? (pp. 1-19). Washington, DC.: National Association for Education of Young Children.

Phillips, D., & Whitebook, M. (May, 1986). Who are the child care workers? The search for answers. Young Children, 14--20.

Phillips, D., McCartney, K., & Scarr, S. (1987). Child-care quality and children's social development. Developmental Psychology, 23, 537-543.

Phillips, D., Howes, C., & Whitebook, M. (1991). Child care as an adult work environment. Journal of Social Issues, 47, 49-70.

Phillips, D.; Howes, C.; Whitebook, M. (1992) The Social Policy Context of Child Care: Effects on Quality. American Journal or Community Psychology, 20, 25-51.

Pines, A. & Maslach, C. (1980). Combatting staff burnout in a day care center: A case study. Child Care Quarterly, 9, 5-16.

Québec Office des Services de Garde à l'Enfance (1992-1993). Où faire garder nos enfants?

Rosenberg, M. (1965). Society and the adolescent self-image. Princeton, NJ: Princeton University Press

Roopnarine, J. L., & Hempel, L. M. (1988). Day care and family dynamics. Early Childhood Research Quarterly, 3, 427-438.

Roopnarine, J. L., Church, C. C., & Levy, G. D. (1989). Day care children's play behaviors: Relationship to their mothers' and fathers' assessments of their parenting behaviors, marital stress, and marital companionship.

Rosenthal, M. K.(1991). Behaviors and beliefs of caregivers in family day care: The effects of background and work environment. Early Childhood Research Quarterly, 6, 262-282.

Rosenthal, M. K. (1990). Social policy and its effects on the daily experiences of infants and toddlers in family day care in Israel. Journal of Applied Developmental Psychology, 11, 85-104.

Ruopp, R., Travers, J., Glantz, F., & Coelen, C. (1979). Children at the centre: Final report of the National Day Care Study. Cambridge, MA: Abt Books.

Salancik, G. R. & Pfeffer, J. (1977). An examination of need-satisfaction models of job attitudes. Administrative Science Quarterly, 22, 427-456.

Salancik, G. R. & Pfeffer, J. (1978). A social information processing approach to job attitudes and task design. Administrative Science Quarterly, 23, 225-253.

Scarr, S. (1984). Mother Care-Other Care. New York: Basic Books Inc

Scarr, S., Phillips, D., & McCartney, K. (1990). Facts, fantasies and the future of child care in the United States. American Psychological Society, 1.

Scarr, S., Phillips, D., & McCartney, K. (1989). Working mothers and their families. American Psychologist, 44, 1402-1409.

Schlieker, E., White, D. & Jacobs, E. (1991). The role of day care quality in the prediction of children's vocabulary. Canadian Journal of Behavioural Science, 23, 12-24.

Schutz, W. (1979).Profound simplicity. New York: Bantam.

Schutz, W. (1992). Beyond Firo-B - three new theory-derived measures - element B: Behavior, element F: Feelings, element S: Self. Psychological Reports, 70, 915-937.

Serbin, L., O'Leary, K., Kent, R., & Tonick, I. (1973). A comparison of teacher response to the preacademic and problem behavior of boys and girls, Child Development, 44, 796-804.

Shreve, C., Twardosz, S., & Weddle, K. (1983). Development and evaluation skills. Early Childhood Research Quarterly, 3, 39-53.

Silverstein, L. (1991). Transforming the debate about child care and maternal employment, American Psychologist, 46, 1025-1032.

Snider, M. & Fu, V. (1990). The effects of specialized education and job experience on early childhood teachers' knowledge of developmentally appropriate practice. Early Childhood Research Quarterly, 5, 69-78.

Sorce, J . & Emde, R.(1981). Mother's presence is not enough: The effect of emotional availability on infant exploration, Developmental Psychology, 17, 737-745.

Sorce, J., Emde, R., Campos, J., & Klinnert, M. (1985). Maternal emotional signalling: Its effect on the visual cliff behaviour of 1-year olds. Developmental Psychology, 21, 195-200.

Spitz, R. (1945). Hospitalism: An inquiry into the genesis of psychiatric conditions in early childhood. Psychoanalytic Study of the Child, 1, 53-74.

Statistics Canada (1982). Initial results from the 1981 survey of child care arrangements

(Labour Force Survey Research Paper Number 31) Ottawa Minister of Supply and Services Canada.

Statistics Canada (1992) in the Gazette Oct 25/91

Stack, D., & Muir, D. (1992). Adult tactile stimulation during face-to-face interactions modulates five-month-olds' affect and attention. Child Development, 63, 1509-1525.

Stuart, B. & Pepper, S. (1991). The contribution of the caregivers' personality and vocational interests to quality in licenced family day care. Canadian Journal of Research in Early Childhood Education, 2, 99-106.

Tabachnick,B. & Fidell,L. (1989). Using multivariate statistics, second edition. Harper & Row, New York.

Termine, N. T. & Izard, C. E. (1988). Infants' responses to their mothers' expressions of joy and sadness. Developmental Psychology, 24, 223-229.

Twardosz, S., Schwartz, S., Fox, J., & Cunningham, J. L. (1979). Development and evaluation of a system to measure affectionate behavior. Behavioral Assessment, 1, 177-190.

Twardosz, S., Botkin, D., Cunningham, J. L., Weddle, K., Sollie, D., & Shreve, C. (1987). Expression of affection in day care. Child Study Journal, 17, 133-151.

Twardosz, S., Nordquist, V. M., Simon, R., & Botkin, D. (1983). The effect of group affection activities on the interaction of socially isolate children. Analysis and Intervention in Developmental Disabilities, 3, 311-338.

Van IJzendoorn, M. H., Goldberg, S., Kroonenberg, P. M., & Frenkel, O. J. (1992). The relative effects of maternal and child problems on the quality of attachment: A meta-analysis of attachment in clinical samples. Child Development, 63, 840-858.

Vandell, D. L. & Powers, C. P. (1983). Day care quality and children's free play activities. American Journal of Orthopsychiatry, 53, 493-500.

Vandell, D. L. & Ramanan, J. (1991). Children of the national longitudinal survey of youth: choices in after-school care and child development. Developmental Psychology, 27, 637-643.

Vandell, D. L., Henderson, V. K., & Shores Wilson, K. (1988). A longitudinal study of children with day-care experiences of varying quality. Child Development, 59, 1286-1292.

Vandell, D. L., Henderson, V. K., & Wilson, K. S. (1988). A longitudinal study of children with day-care experiences of varying quality. Child Development, 59, 1286-1292.

Walters, J. Pearce, D., & Dahms, L.(1957) Affectionate and aggressive behaviour of preschool children, Child Development, 28, 15-26.

Waters, E., Wippman, J., & Sroufe, L. A. (1979). Attachment, positive affect, and competence in the peer group: Two studies in construct validation. Child Development, 50, 821-829.

White, D. R., Parent, M. B., Chang, H. & Spindler, J. (1992). Parental selection of quality child care. Canadian Journal of Research in Early Childhood Education, 3, 101-108.

White, D. R., & Rhodes, L. (1986). Environmental quality in day care. Concordia University Research Bulletin, Vol V., No.009.

White, D. R., Jacobs, E., & Schliecker, E. (1988). Relationship of day-care environmental quality and children's social behavior. Canadian Psychology, 29, Abstract #668.

White, D. R., Parent, M. B., Chang, H. & Spindler, J. (1991). Parental selection of quality child care. Concordia University Research Bulletin, Vol IX, No.019.

Whitebook, M. (1984). "Caring for children as work." In J.T. Greenman and R.W. Fuqua (Eds.) Making daycare better: Training, evaluation, and the process of change, 66-83, New York: Teachers College Press.

Whitebook, M., Howes, C., Darrah, R., & Friedman, J. (1986). Who's minding the child care workers?: A look at staff burn-out. Young Children, 2, 2-6.

Whitebook, M., Howes, C., & Phillips, D. (1990). Who cares? Child Care teachers and the quality of care in America. Final Report of the National Child Care Staffing Study. Oakland, CA: Child Care Employee Project.

Yarrow, L. (1961). Maternal deprivation: Toward an empirical and cenceptual evaluation. Psychological Bulletin, 58, 459-490.

À la direction de la garderie 1993-94

Bonjour,

Permettez-moi tout d'abord de vous remercier de l'intérêt que vous portez à notre étude. Dans les pages qui suivent, vous trouverez une lettre d'information, présentée en français et en anglais, décrivant les détails de cette étude.

Nous vous prions de lire attentivement cette lettre et de la transmettre aux éducateurs\trices travaillant présentement à temps plein (> 30 heures/ semaine) avec des enfants d'âge préscolaire. Nous vous appellerons dans quelques semaines afin de répondre à vos questions et discuter des modalités du projet. Ce projet sera réalisé pendant les mois de novembre 93 et de l'hiver 94. Si vous désirez y participer, il nous fera plaisir d'organiser une rencontre au moment qui vous convient le mieux.

Merci de votre coopération.

Davina Mill

Davina Mill
848-2256

Dear Daycare Director, 1993-94

Thank-you for showing interest in our study. In the following pages, you will find a letter of information, both in French and English, describing the details of the study.

Please read this and show it to those educators who are currently working full time (more than 30 hours per week) with preschool-aged children. We will call you back in a week or two to answer your questions and to discuss the project with you. We will be conducting the study in November of this year, and during the winter months of 1994. If you wish to participate, we would be pleased to arrange a visit at a time that would be most convenient for you.

Thank you for your cooperation.

Davina Mill

Davina Mill
848-2256

LETTER OF INFORMATION

Dear director and daycare educators, 1993/94

The need for quality daycare has never been so apparent as it is today. More children than ever before are using daycare services. Though daycare research has addressed a number of issues, some important questions still remain unanswered. For example, what kind of people are attracted to the field of child care? What features of the day care experience affect educators' job satisfaction?

We are conducting a study to explore these questions. Working in child care presents a number of rewards, as well as challenges. With your collaboration, we are hoping to gain insight into the stresses and needs of educators. Results from this study can contribute to the sound planning of daycare centers that should benefit daycare workers, parents and children alike.

WHO IS CONDUCTING THIS RESEARCH? This research is being conducted by Davina Mill, a Ph.D. candidate at Concordia University, and two trained research assistants, under the supervision of Dr. Donna White. This project is being funded by both the Canadian and Quebec governments in an effort to learn more about the effects of daycare on children. Approval to conduct this study has been granted by the governing ethics board of Concordia University.

WHO IS INVITED TO PARTICIPATE? This project involves the participation of the educators and directors at the daycare center. There are no limits to the number of educators per center that can participate in the study, except that they must work full time (>30 hours per week) and be caring for preschoolers (3-5 year olds).

Director's involvement: The director will be briefly interviewed, either in person or by phone, concerning various details about the daycare center (e.g., size, facilities available, etc.) and be asked to complete a short questionnaire.

Educator's involvement: The educators will be asked to permit 2-3 researchers into their classroom for approximately 3 hours, during which time observations will be recorded on paper [redacted] concerning features of the environment and functioning of the daycare group. Educators will be given a packet of questionnaires to fill out at their convenience. The questionnaires will address the following issues: Demographic information, educators' experience in the field of child care, strategies they use for coping, and feelings they have about themselves and their employment. There are no right or wrong answers. As a few additional questions might be necessary regarding some aspects of the daycare that are not readily observable, we would like to meet with the educator, again at her convenience, for a brief interview. As the educators' involvement in this study is somewhat extensive, a $20 honorarium will be offered to them.

All information will be kept strictly confidential. Data will never be released on an individual. Each participant will be given a subject number and all references will be made according to this number. Once completed, all questionnaires will be handed

directly to the researchers. Results will always be reported as a group; that is, no individuals or daycare center will be identified.

It should be highlighted that all participation is completely voluntary. However, as we need many participants in order to best conduct this study, your participation would be greatly appreciated. If you have any questions concerning this study, please do not hesitate to contact us at 848-2256. Specify that you are calling for Davina Mill.

We would like to take this opportunity to thank you in advance for your time and interest in our study.

Sincerely,

Davina Mill, M.A., Ph.D. Candidate
Department of Psychology
Concordia University
7141 Sherbrooke West
Montréal, Québec
H4B-1R6

Donna R. White, Ph.D.
Department of Psychology
Concordia University
7141 Sherbrooke West
Montréal, Québec
H4B-1R6

Appendix G

Rosenberg's Self-Esteem Scale

Please indicate how much you agree or disagree with the following statements.

		strongly disagree	disagree	agree	strongly agree
1.	I feel that I am a person of worth, at least on an equal basis with others.	1	2	3	4
2.	I feel that I have a number of good qualities.	1	2	3	4
3.	All in all, I am inclined to feel that I am a failure.	1	2	3	4
4.	I am able to do things as well as most other people.	1	2	3	4
5.	I feel that I do not have much to be proud of.	1	2	3	4
6.	I take a positive attitude towards myself.	1	2	3	4
7.	On the whole, I am satisfied with myself.	1	2	3	4
8.	I wish I could have more respect for myself.	1	2	3	4
9.	I certainly feel useless at times.	1	2	3	4
10.	At times I think I am no good at all.	1	2	3	4

Appendix K

Items omitted from the Early Environment Rating Scale for the Present Study

1- greeting/ departing

2- meals, snacks

12 - using language

14- informal use of language

16- supervision (fine motor activities)

20- supervision (gross motor activities)

22- music/ movement

27- supervision (creative activities)

29- free play

32- tone

33- provisions for exceptional children

Adult Needs, items included:

34,35,36,37

Developmentally Appropriate Activities and Materials, items included:

6,7,8,9,11,13,15,17,18,21,23,24

Appendix P

Table A1

Intercorrelations for Caregiver Background Characteristics Variables

	Training	Education	Experience	Age	SES	Marital Status	Canada Born
Training	1.0000	.9503**	-.0481	.0903	.3970**	.0596	-.0171
Education		1.0000	-.0389	.0701	.3756**	.0331	.0220
Experience			1.0000	.4893**	-.1570	-.1037	.0488
Age				1.0000	-.0818	-.0492	.4774**
SES					1.0000	.3744**	-.1862
Marital Status						1.0000	.0376
Canada Born							1.0000

* $p<.05$
** $p<.01$

Table A2

Intercorrelations for Caregivers' Personal Resources Variables

	Well being	Self-esteem	Social support	Home hassles	Perceived stress
Well being	1.0000	.4360**	.3450**	-.4971**	-.7364**
Self-esteem		1.0000	.2633*	-.4462	-.5303**
Social support			1.0000	-.3604**	-.1622
Home hassles				1.0000	.5473**
Perceived stress					1.0000

*$p < .05$
**$p < .01$

Table A3

Intercorrelations for Centre Quality and Characteristics Variables

	ECERS	Profit	Turnover	Ratio	Class size	Centre size
ECERS	1.0000	.2307*	-.3024**	-.0280	.1210	.0577
Profit		1.0000	-.1360	-.2681*	-.3446**	-.4592**
Turnover			1.0000	.0948	.1499	.2452*
Ratio				1.0000	.5775**	.5311**
Class size					1.0000	.7148**
Centre size						1.0000

	Adult needs	Materials	Parent fees	% on subsidies	Training
ECERS	.7875**	.9258	-.1451	-.4974**	.3250**
Profit	.5480**	.0217	-.5990**	-.1659	.0111
Turnover	-.2026	-.2247	.3123**	-.0777	-.1162
Ratio	-.1298	.0841	.3089**	-.0179	.1028
Class size	-.1018	.2599*	.5138**	-.1914	.0387
Centre size	-.2273	.2662	.6604**	-.3159**	.1031
Adult needs	1.0000	.5270**	-.4134**	-.3164**	.2250
Materials		1.0000	.0359	-.5157**	.3455**
Parent fees			1.0000	-.0884	.0081
% on subsidies				1.0000	-.2212
Training					1.0000

*$p<.05$
**$p<.01$

(Table A3 con't)

	Wages	Director
ECERS	.4725**	-.2045
Profit	.3574**	-.3844
Turnover	-.1803	-.0726
Ratio	.0189	.2335
Class size	.0486	.5197**
Centre size	.0207	.2897*
Adult needs	.4835**	-.4138**
Materials	.3765**	-.0928
Parent fees	.0733	.5807**
% on subsidies	-.3896	-.0906
Training	.1415	-.0015
Wages	1.0000	-.0978
Director training		1.0000

*p<.05
**p<.01

Table A4

Intercorrelations for Perception of Job Variables

	Burnout	Job reward	Job concern	FACES	Supervisor support
Burnout	1.0000	-.3047**	.6153**	-.6106**	-.3942**
Job reward		1.0000	-.4399**	.3579**	.6298**
Job concern			1.0000	-.3917**	-.5983**
FACES				1.0000	.3045
Supervisor support					1.0000

*p<.05
**p<.01

Table A5

Correlations Between Centre Characteristics and Caregiver Background Variables

	Training	Education	Experience	Age	SES	Canada born
ECERS	.3250**	.2555*	.2510*	-.1047	.1546	-.3684**
Profit	.0111	-.1119	.1196	-.0343	-.1045	-.2042
Turnover	-.1162	-.1375	-.1353	-.1721	-.0122	-.0762
Ratio	.1028	.1129	-.0542	.1028	.0410	.0519
Class size	.0387	.0821	-.0153	.0771	.1182	-.0092
Centre size	.1031	.1554	-.0698	.0191	-.0361	.0096
Adult needs	.2250	.1267	.1833	-.0736	.1273	-.3513**
Materials	.3455**	.3004**	.1616	-.1348	.1358	-.2925**
Parent fees	.0081	.0596	-.0349	.1062	-.0003	-.0848
% subsidies	-.2212	-.1986	-.1037	-.0276	-.1155	.1472
Training	1.0000	.9503**	-.0481	.0903	.3970**	-.0171
Wages	.1415	.0965	.4351**	.1499	.0679	-2629*
Director experience	-.0015	.0969	-.1360	.1393	.0982	.0531

*$p<.05$
**$p<.01$

Table A6

Correlations Between Caregiver Job Perceptions and Centre Characteristics Variables

	Burnout	Job reward	Job concerns	Job satisfaction	Supervisor support
ECERS	-.2470*	.1291	-.2587*	.1762	.2610*
Profit	-.2021	.4747**	-.3406**	.2314*	.3515**
Turnover	-.0539	-.1491	-.0055	.1639	-.1289
Ratio	.0182	-.1579	.1877	-.0435	-.2036
Class size	-.1194	-.2889*	.0728	-.0237	-.2002
Centre size	-.0685	-.2467*	.2584*	.0233	-.2809*
Adult needs	-.3086**	.2908*	-.3612**	.3066**	.4120**
Materials	-.1878	.0368	-.1111	.1543	.1307
Parent fees	.1464	-.3471**	.2796*	-.1169	-.3911**
% subsidies	.3215**	-.1859	.1912	-.2746*	-.1564
Training	-.0378	.0886	-.0561	.0669	.2341*
Wages	-.1181	.1898	-.2315*	.1276	.0706
Director experience	-.0180	-.3114	.1158	-.1000	-.2157

*$p<.05$
**$p<.01$

Table A7

Correlations Between Centre Characteristics and Caregiver Personal Resources Variables

	Well being	Self-esteem	Social support	Home hassles	Perceived stress
ECERS	.2786*	.1608	.1375	-.3310**	-2272*
Profit	.0483	.1762	-.1606	-.1221	-.0541
Turnover	-.1633	.0068	-.2248	.1437	.0873
Ratio	-.0036	-.0054	-.0197	.1048	.0355
Class size	.1067	.1088	.1920	-.0619	-.0097
Centre size	.1562	-.0400	.0379	.0761	-.0298
Adult needs	.2228	.1814	.0432	-.3396**	-.1723
Materials	.3067**	.1403	.1816	-.2866*	-.2366
Parent fees	-.0441	-.1089	-.0561	.2252	.0834
% subsidies	-.3432**	-.2907*	.0290	.3036*	.4099**
Training	.0411	.0814	.1227	.0902	.0085
Wages	.2434*	.0848	-.0371	-.1930	-.1667
Director experience	.0104	.1032	.0138	.0781	-.0707

*p<.05
**p<.01

Table A8

Correlations Between Caregiver Personal Resources and Job Perceptions Variables

	Burnout	Job reward	Job concern	Job satisfaction	Supervisor support
Well being	-.6010**	.3032**	-.3488**	.5430**	.3260**
Self-esteem	-.5892**	.2485*	-.3483**	.3295**	.3327**
Social support	-.2483*	.1303	-.1832	.1566	.2923**
Home hassles	.4818**	-.2462*	.4849**	-.3197**	-.3023**
Perceived stress	.6045**	-.2173	.3715**	-.5096**	-.2423*

*$p<.05$
**$p<.01$

Table A9

Correlations Between Caregiver Background Characteristics and Personal Resources Variables

	Well being	Self-esteem	Social support	Home hassles	Perceived stress
Training	.0411	.0814	.1227	.0902	.0085
Education	.0582	.0934	.1282	.0794	-.0315
Experience	.0394	-.0211	-.0211	-.0981	-.0703
Age	.0988	.1198	-.0673	.0860	-.0647
SES	.0887	.0457	.1270	-.0400	-1396
Canada born	.0756	.1181	.1420	-.0930	-.0952

*$p<.05$
**$p<.01$

Table A10

Intercorrelations for Caregiving Practices Variables

	Arnett	Anger	Affection
Arnett	1.0000	-.4763**	.7632**
Anger		1.0000	-.2655**
Affection			1.0000

*$p < .05$
**$p < .01$

Appendix Q

Univariate F-test Follow - Up Analyses for each Variable in Relation to Affection

	SS	df	MS	F
WORK ENVIRONMENT		(1,66)		
ECERS	5.73		5.73	7.14**
Ratio	9.27		9.27	2.68
Turnover	0.14		0.14	3.94*
Percent on Subsidies	0.17		0.17	4.85*
Wages	2.86		2.86	3.84*
Number of Children in Class	208.43		208.43	4.48*
PERCEPTION OF JOB		(1,72)		
Burnout*	3.07		3.07	5.72*
Job Reward	0.05		0.05	0.23
Job Concerns	0.13		0.13	0.46
Job Satisfaction	0.33		0.33	0.18
Supervisor Support	0.05		0.05	0.06
BACKGROUND		(1,73)		
Training	0.90		0.90	0.48
Experience	4.10		4.10	0.34
Age	95.35		95.35	2.58
SES	73.05		73.05	2.06
PERSONAL RESOURCES		(1,76)		
Well Being	2.25		2.25	2.89
Self-Esteem	0.44		0.44	2.33
Home Hassles	0.23		0.23	1.61
Social Support	0.10		0.10	0.40

* $p < .05$

** $p < .01$

Appendix R

Table A11

Correlations Between Caregiving Practices and Caregiver Background Characteristics

	Anger	Affection
Training	-.0534	.0147
Education	-.0178	.0072
Experience	-.0084	.0250
Age	.0108	-.1852
SES	-.0663	.0963
Canada born	.1122	-.2132

*$p < .05$
**$p < .01$

Table A12

Correlations Between Caregiving Practices and Caregiver Perceptions of Job

	Anger	Affection
Burnout	.2372*	-.2922*
Job reward	-.3174**	-.0201
Job concerns	.2648*	-.1812
Job satisfaction	-.0935	.1458
Supervisor support	-.2856*	.1126

*$p < .05$
**$p < .01$

Table A13

Correlations Between Caregiving Practices and Caregiver Personal Resources

	Anger	Affection
Well being	-.1130	.2480*
Self-esteem	-.1851	.1823
Social support	-.0077	.0011
Home hassles	.1866	-.1528

*$p < .05$
**$p < .01$

Table A14

Correlations Between Caregiving Practices and Centre Characteristics Variables

	Anger	Affection
ECERS	-.1155	.3896**
Profit	-.2404*	.1835
Turnover	.1595	-.1216
Ratio	-.0015	.1154
Class size	.1020	.2548*
Centre size	.3756**	.1737
Adult needs	-.2515*	.3032**
Materials	-.0036	.4027**
Parent fees	.3542**	-.0887
% subsidies	.1227	-.3134**
Training	-.0534	.0147
Wages	-.0238	.3196**
Director experience	-.0832	.0255

*$p < .05$
**$p < .01$

Appendix T

Univariate F-test Follow - Up Analyses for each Variable in Relation to Anger

	SS	df	MS	F
WORK ENVIRONMENT		(1,66)		
ECERS	0.41		0.41	0.47
Ratio	4.92		4.92	1.39
Turnover	0.13		0.13	3.61
Percent on Subsidies	0.10		0.10	2.62
Wages	0.86		0.86	1.11
Number of Children in Class	14.80		14.80	0.29
PERCEPTION OF JOB		(1,72)		
Burnout*	1.42		1.42	2.25
Job Reward	2.43		2.43	12.41**
Job Concerns	1.16		1.16	4.25*
Job Satisfaction	0.69		0.69	0.37
Supervisor Support	11.05		11.05	14.09***
BACKGROUND		(1,73)		
Training	1.26		1.26	0.67
Experience	4.42		4.42	0.37
Age	1.16		1.16	0.03
SES	39.20		39.20	1.09
PERSONAL RESOURCES		(1,76)		
Well Being	0.31		0.31	0.38
Self-Esteem	0.30		0.30	1.15
Home Hassles	0.22		0.22	1.53
Social Support	0.07		0.07	0.28

* $p < .05$
** $p < .01$
*** $p < .001$

Appendix U

Table A15

Mean scores of affection and anger for two levels of training and three levels of the other 20 variables

		Cell Sample Size		Affection		Anger	
		low training	high training	low training (risk)	high training	low training (risk)	high training
Age	low	1	0	74	----	0	---
	medium	31	14	71	78	.87	.57
	high (risk)	17	14	59	67	.76	.35
Experience	low (risk)	4	3	56	62	0	0
	medium	6	2	65	78	2.2	0
	high	39	23	68	73	.69	.56
Well-being	low (risk)	14	5	56	70	1.7	0
	medium	22	16	66	71	.59	.81
	high	13	7	81	77	.23	0

		Cell Sample Size		Affection		Anger	
		low training	high training	low training (risk)	high training	low training (risk)	high training
Self-Esteem	low (risk)	14	2	45	55	.92	0
	medium	25	17	75	76	1.1	.76
	high	10	9	77	68	0	0
Social Support	low (risk)	16	4	62	87	1.1	0
	medium	23	12	68	76	.95	.41
	high	10	12	72	64	.10	.67
Home Hassles	low	10	8	81	70	.10	0
	medium	28	14	69	70	.46	.57
	high (risk)	11	6	49	79	2.4	.83

		Cell Sizes		Affection		Anger	
		low training	high training	low training (risk)	high training	low training (risk)	high training
Stress	low	11	5	83	64	.09	0
	medium	18	19	63	70	.72	.68
	high (risk)	20	4	62	94	1.3	0
Job Reward	low (risk)	11	8	56	73	2.3	1.0
	medium	29	10	80	68	.51	.50
	high	9	10	38	76	0	0
Job Satisfaction	low (risk)	17	6	53	78	1.5	0
	medium	9	10	85	73	0	.5
	high	23	12	70	69	.60	.67

		Cell Sizes		Affection		Anger	
		low training	high training	low training (risk)	high training	low training (risk)	high training
Job Concerns	low	12	6	75	71	.17	0
	medium	22	17	70	68	.54	.29
	high (risk)	15	5	54	86	1.7	1.6
Burnout	low	4	2	75	49	0	0
	medium	38	26	67	74	1.0	.5
	high (risk)	3	0	49	---	.33	---
Supervisor Support	low (risk)	13	4	53	74	.25	0
	medium	25	14	78	70	.44	.92
	high	11	10	58	74	0	0

		Cell Sizes		Affection		Anger	
		low training	high training	low training (risk)	high training	low training (risk)	high training
ECERS	low (risk)	14	5	54	56	.92	0
	medium	26	10	62	77	1.0	1.0
	high	9	10	101	74	0	0
Turnover	low	10	9	79	91	0	0
	medium	24	8	61	47	.45	0
	high (risk)	12	10	73	78	2.4	.8
% on Subsidies	low	5	8	66	68	0	0
	medium	25	17	80	76	.12	.47
	high (risk)	14	1	51	44	.85	0

		Cells Sizes		Affection		Anger	
		low training	high training	low training (risk)	high training	low training (risk)	high training
Class Size	low	19	7	61	63	0	.71
	medium	22	9	63	74	1.2	0
	high (risk)	8	12	91	76	1.8	.67
Ratio	low	15	3	55	42	.73	1.7
	medium	15	11	83	73	.13	.72
	high (risk)	19	14	63	78	1.4	0
Wages	low (risk)	10	7	52	78	.10	1.1
	medium	26	13	61	64	1.5	0
	high	11	8	93	80	0	.62

		Cell Sizes		Affection		Anger	
		low training	high training	low training (risk)	high training	low training (risk)	high training
Director Experience	low (risk)	14	4	55	95	0	0
	medium	20	13	69	75	.65	.61
	high	9	9	91	57	.22	0
Profit	Profit (risk)	19	14	57	66	2.0	.57
	Nonprofit	30	14	73	78	.07	.35