Teacher Education in Child Care

Scorecard

Characteristics of the Reports

Assessments of development were obtained for *more than 9,000* children to determine the relationships to time spent in centre care.

Country of Origin	
	# of Reports
Canada	1
Bermuda	0
Sweden	0
UK	0
USA	12

Research Designs	
Retrospective	**Prospective**
0	13
No Follow-up	**Follow-up**
6	7
Observational	**Experimental**
13	0

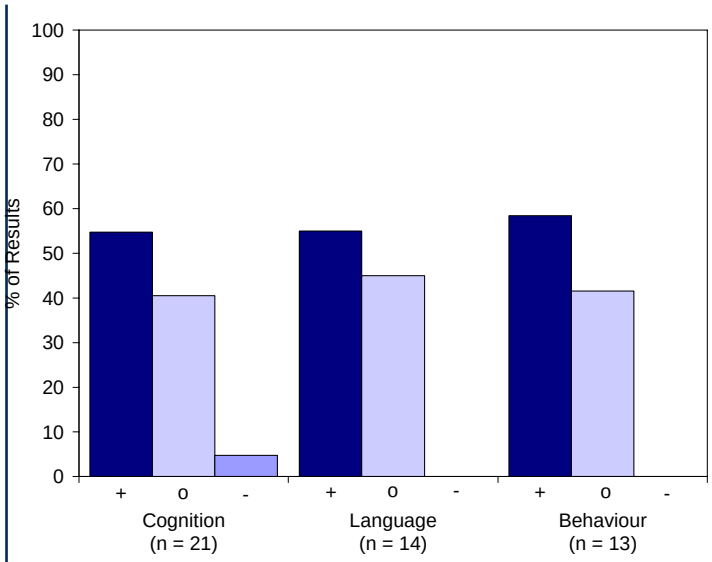
Summary of Results

Relationship of Teacher Education and/or Training to Cognition, Language, or Behaviour			
	Cognition	**Language**	**Behaviour**
% of Positive Reports	70%	73%	71%
# of Reports	10	11	7

The 13 reports contained 48 tests of children's development. In each report teacher education and/or training accounted for the positive and null relationships to children's development. Of the 48 tests only one subtest of one cognition measure in one study reported a negative influence of teacher education.

If a test contained subtests (subscales), the result of each subscale was assigned a fractional value. Fractional values could be positive, zero, or negative within the same test. For that reason, percentages of results were not always whole numbers.

A positive sign means that teacher education was related to higher scores on tests of children's development. A negative sign meant that teacher education was related to lower scores on the test. Zero means that teacher education in care was unrelated to the test results.



Relationships of Teacher Education in Child Care to Children's Development

Other Considerations

Good research methods remove (through selection or statistical control) characteristics of children and families that might masquerade as outcomes of the child care factor in question. For example, if families of children who spent more time in child care were financially poorer than those of children who spent less time in care, any differences in their development said to be due to time in care could be challenged as differences due to the impact of poverty. Removing confounding variables adds credibility to conclusions.

In the 13 reports, researchers controlled for the following variables.

Variables Most Frequently Removed from Outcomes			
Variable	**# of Reports**	**Variable**	**# of Reports**
Child's gender	5	Child's early abilities	3
Maternal education	9	Family structure (parents, guardians)	3
Family income	6	Maternal psychological adjustments/well-being	3
Ethnicity	4	Study location	3
Home environment	4		

Other Variables Removed
Child: Age of entry, Amount of infancy day care, Birth order, Child IQ, Child cognitive skills at initial testing phase, Child skills at school entry, Child temperament, Preschool experiences, Preschool risk status, Prior cognitive performance, Time spent in care.
Child Care/School: Features of first grade classroom, Teacher attachment, Teacher harshness, Teacher responsiveness, Teacher sensitivity, Type of care.
Family: Family stress, Maternal depression, Maternal sensitivity, Maternal vocabulary, Maternal/paternal child-rearing attitudes, Parental practices, Parental stress level, Parental values, Rating of benefits/risks of work.

Citations, Summaries, and Abstracts

Blau, D. M. (1999). The effect of child care characteristics on child development. *The Journal of Human Resources, 34*, 786-822. Full Text

Country	USA
Sample Size	5226
Age	Infant & Preschool
Database	NLSY
Design	Prospective Follow-up Observational
Factors	Adult-Child Ratio Teacher Education

The effect of group size, staff-child ratio, training, and other characteristics of child care on child development is estimated using data from the National Longitudinal Survey of Youth. In contrast to most previous research, the sample is large and nationally representative, the data contain good measures of the home environment, and there are repeated measures of child development. Child care characteristics have little association with child development on average. Associations are found for some groups of children, but they are as likely to be of the "wrong" sign as they are to be of the sign predicted by developmental psychologists. (Author's Abstract)

Burchinal, M. R., Roberts, J. E., Nabors, L. A., & Bryant, D. M. (1996). Quality of center child care and infant cognitive and language development. *Child Development, 67*, 606-620. Full Text

Country	USA
Sample Size	79
Age	Infant
Database	---
Design	Prospective No Follow-up Observational
Factors	Adult-Child Ratio Age of Entry Quality Teacher Education

The relations between quality of center-based child care and infant cognitive and language development were examined in a sample of 79 African-American 12-month-old infants. Both structural and process measures of quality of child care were collected through interviews with the center director and observation of the infant classroom. Results indicated that quality of infant care positively correlated with scores on standardized assessments of cognitive

development (Bayley Scales of Infant Development), language development (Sequenced Inventory of Communication Development), and communication skills (Communication and Symbolic Behavior Scales). In addition, quality of care in child care centers and at home was positively related. Analyses that adjusted for this association between quality of care at home and in child care suggested that the process measure of quality of child care independently related to the infant's cognitive development, and one structural measure, the infant-adult ratio, independently related to the infant's overall communication skills. Neither child nor family factors was found to moderate the association between child care quality and infant development. These findings, in conjunction with the growing child care literature, suggest that researchers and policymakers should focus on how quality of child care can be improved to enhance, not impair, infant development. (Authors' Abstract)

Burchinal, M. R., Roberts, J. E., Riggins, R., Zeisel, S., Neebe, E., & Bryant, M. (2000). Relating quality of center-based child care to early cognitive and language development longitudinally. *Child Development, 71*, 339-357. **Full Text**

Country	USA
Sample Size	89
Age	Infant & Preschool
Database	---
Design	Prospective Follow-up Observational
Factors	Adult-Child Ratio Quality Teacher Education

How quality of center-based child care relates to early cognitive and language development was examined longitudinally from 6 to 36 months of age in a sample of 89 African American children. Both structural and process measures of quality of child care were collected through observation of the infant classroom. Results indicated that higher quality child care was related to higher measures of cognitive development (Bayley Scales of Infant Development), language development (Sequenced Inventory of Communication Development), and communication skills (Communication and Symbolic Behavior Scales) across time, even after adjusting for selected child and family characteristics. In addition, classrooms that met professional recommendations regarding child:adult ratios tended to have children with better language skills. Classrooms that met recommendations regarding teacher education tended to have girls with better cognitive and receptive language skills. These findings, in conjunction with the growing child-care literature, provide further evidence that researchers and policymakers should strive to improve the quality of child care to enhance early development of such vulnerable children. (Authors' Abstract)

Clarke-Stewart, K. A., Vandell, D. L., Burchinal, M., O'Brien, M., & McCartney, K. (2002). Do regulable features of child-care homes affect children's development? *Early Childhood Research Quarterly, 17*, 52-86. Full Text

Country	USA
Sample Size	172
Age	Infant & Preschool
Database	NICHD
Design	Prospective No Follow-up Quasi-Experimental
Factors	Adult-Child Ratio Quality Teacher Education

Data from the NICHD Study of Early Child Care were used to assess whether regulable features of child-care homes affect children's development. Child-care homes selected were those in which there were at least two children and the care provider received payment for child care (*ns=164* when the study children were 15 months old, 172 at 24 months, and 146 at 36 months). Caregivers who were better educated and had received more recent and higher levels of training provided richer learning environments and warmer and more sensitive caregiving. Caregivers who had more child-centered beliefs about how to handle children also provided higher quality caregiving and more stimulating homes. In addition, when settings were in compliance with recommended age-weighted group size cut-offs, caregivers provided more positive caregiving. Quality of care was not related to caregivers' age, experience, professionalism, or mental health, or to the number of children enrolled in the child-care home or whether the caregivers' children were present. Children with more educated and trained caregivers performed better on tests of cognitive and language development. Children who received higher quality care, in homes that were more stimulating, with caregivers who were more attentive, responsive, and emotionally supportive, did better on tests of language and cognitive development and also were rated as being more cooperative. These findings make a case for regulating caregivers' education and training and for requiring that child-care homes not exceed the recommended age-weighted group size. (Authors' Abstract)

Goelman, H., & Pence, A. R. (1987). Some aspects of the relationships between family structure and child language development in three types of day care. In S. Kontos & D. L. Peters. (Eds.), *Continuity and Discontinuity of Experience in Child Care* (pp.129-146). Norwood, NJ: Ablex Publishing. Full Text

Country	Canada
Sample Size	105
Age	Preschool
Database	Victoria Day Care Research Project
Design	Prospective Follow-up Observational
Factors	Quality Teacher Education Type of Care

Investigated ways in which structure, process, and family context variables have an impact on each other and on the development of children in different types of daycare (DC) from different family backgrounds. Ss were the children, their parents, and caregivers in 3 caregiving settings in Canada: licensed DC centers (LDCs), licensed family DC homes (LDCHs), and unlicensed family DC homes (UDCHs). Ss included 53 triads in the LDCs, 27 in the

LDCH group, and 25 in the UDCH group. All of the children were aged at least 30 mo. Results of Peabody Picture Vocabulary Test (PPVT) and Expressive One-Word Picture Vocabulary Test scores were examined to determine evidence of roles played by family structure and type of DC arrangement. Results suggest a dynamic interaction of family and DC variables that affect the child's expressive and receptive language development. (*PsycINFO* Abstract)

Howes, C. (1997). Children's experiences in center-based child care as a function of teacher background and adult:child ratio. *Merrill-Palmer Quarterly, 43,* 404-425. **Full Text**

Country	USA
Sample Size	1580
Age	Infant & Preschool
Database	CQO & Florida Quality Improvement Study
Design	Prospective No Follow-up Observational
Factors	Adult-Child Ratio Teacher Education

The relation between teacher background and adult:child ratio in center-based child care was examined in two representative samples: the Cost, Quality, and Outcome Study (N = 655 classrooms and 760 children) and the Florida Quality Improvement Study (N = 410 classrooms and 820 children). Classrooms were classified according to whether the observed adult:child ratio met professional standards and by the background (formal education and early childhood education training) of the lead teacher. We compared children and teacher behaviours based on these classifications. In both samples, teacher background made an independent contribution, distinguishing between teaching behaviours, children's activities, and outcomes. Teachers with the most advanced education were most effective. Teachers with associate of arts degrees and CDA certificated were more effective than teachers with some college or just high school plus workshops. In the Cost, Quality, and Outcome study, but not the Florida Quality Improvement Study, classrooms that complied with professional standards also had teachers with more effective teaching and more positive child outcomes. There were no interactive effects of ratio and teacher background. (Author's Abstract)

Kontos, S., Hsu H., & Dunn, L. (1994). Children's cognitive and social competence in child care centers and family day-care homes. *Journal of Applied Developmental Psychology, 15*, 387-411. **Full Text**

Country	USA
Sample Size	117
Age	Preschool
Database	---
Design	Prospective No Follow-up Observational
Factors	Adult-Child Ratio Quality Teacher Education

The purpose of this study was to determine whether children in child-care centers are at an advantage developmentally over their peers in family day care because of the more structured educational programs in centers, or if there were other important determinants of children's development in centers and family day-care homes. One hundred seventeen children (60 in centers and 57 in family day-care homes)

between 30 and 60 months of age participated in the study. Comparable measures were obtained of the structure (ratio, caregiver training), process (caregiver nurturing attitudes and intense involvement with children), and global quality in 30 centers and 30 family day-care homes. Four measures of children's cognitive and social competence were also obtained (intellectual development, complex cognitive and social play, sociability). Results comparing characteristics of centers and family day-care homes and the development of children in those settings were consistent with Clarke-Stewart's (1987a, 1987b, 1991) findings of more structured educational programs and more complex cognitive and social play among children in centers. The results of the path analysis suggested that variations in caregivers' training and the nature of their interactions with children within and between centers and family day-care homes made a difference to children's cognitive and social competence. (Authors' Abstract)

Loeb, S., Fuller, B., Kagan, S. L., & Carrol, B. (2004). Child care in poor communities: Early learning effects of type, quality, and stability. *Child Development, 75*, 47-65. **Full Text**

Country	USA
Sample Size	451
Age	Preschool
Database	---
Design	Prospective Follow-up Observational
Factors	Quality Teacher Education Type of Care

Young children in poor communities are spending more hours in nonparental care because of policy reforms and expansion of early childhood programs. Studies show positive effects of high-quality center-based care on children's cognitive growth. Yet, little is known about the effects of center care typically available in poor communities or the effects of home-based care. Using a sample of children who were between 12 and 42 months when their mothers entered welfare-to-work programs, this paper finds positive cognitive effects for children in center care. Children also display stronger cognitive growth when caregivers are more sensitive and responsive, and stronger social development when providers have education beyond high school. Children in family child care homes show more behavioral problems but no cognitive differences. (Authors' Abstract)

NICHD Early Child Care Research Network (1999). Child outcomes when child care center classes meet recommended standards for quality. *American Journal of Public Health, 89*, 1072-1077. Full Text

Country	USA
Sample Size	1364
Age	Preschool
Database	NICHD
Design	Prospective Follow-up Observational
Factors	Adult-Child Ratio Quality Teacher Education

OBJECTIVES: This study assessed outcomes for children when child care centers meet recommended care standards. METHODS: Data from the NICHD Study of Early Child Care were used to examine the association between meeting standards for child-staff ratios, group sizes, caregiver training, and caregiver education and children's development at 24 and 36 months of age. RESULTS: There were 5 major findings: (1) most classes observed did not meet all 4 recommended standards (compliance ranged from 10% at 6 months of age to 34% at 36 months of age); (2) linear associations were found between number of standards met and child outcomes, and this was more the case at 36 months than at 24 months of age: (3) there was no evidence of threshold effects; (4) children in classes that met more standards had better school readiness and language comprehension scores as well as fewer behavior problems at 36 months of age; and (5) child outcomes were predicted by child-staff ratio at 24 months and caregiver training and education at 36 months of age. CONCLUSIONS: Outcomes were better when children attended classes that met recommended child-staff ratios and recommended levels of caregiver training and education. (Author's Abstract)

NICHD Early Child Care Research Network (2002). Child-care structure --> process --> outcome: Direct and indirect effects of child care quality on young children's development. *Psychological Science, 13*, 199-206. Full Text

Country	USA
Sample Size	1083
Age	Preschool
Database	NICHD
Design	Prospective Follow-up Observational
Factors	Adult-Child Ratio Quality Teacher Education

With data from the NICHD Study of Early Child Care, we used structural equation modeling to test paths from structural indicators of child-care quality, specifically caregiver training and child-staff ratio, through a process indicator to child outcomes. There were three main findings: (a) Quality of maternal caregiving was the strongest predictor of cognitive competence, as well as caregivers' ratings of social competence; (b) quality of nonmaternal caregiving was associated with cognitive competence and caregivers' ratings of social competence; and (c) there was a mediated path from both caregiver training and child-staff ratio through quality of nonmaternal caregiving to cognitive competence, as well as to caregivers' ratings of social competence, that was not accounted for entirely by family variables. These findings provide empirical support for policies that improve state regulations for caregiver training and child-staff ratios. (Author's Abstract)

NICHD Early Child Care Research Network, & Duncan, G. J. (2003). Modeling the impacts of child care quality on children's preschool cognitive development. *Child Development, 74*, 1454-1475. Full Text

Country	USA
Sample Size	1364
Age	Infant & Preschool
Database	NICHD
Design	Prospective Follow-up Observational
Factors	Adult-Child Ratio Quality Teacher Education Time Spent

The National Institute of Child Health and Human Development (NICHD) Study of Early Child Care compared 3 statistical methods that adjust for family selection bias to test whether child care type and quality relate to cognitive and academic skills. The methods included: multiple regression models of 54-month outcomes, change models of differences in 24- and 54-month outcomes, and residualized change models of 54-month outcomes adjusting for the 24-month outcome. The study was unable to establish empirically which model best adjusted for selection and omitted-variable bias. Nevertheless, results suggested that child care quality predicted cognitive outcomes at 54 months, with effect sizes of .04 to .08 for both infant and preschool ages. Center care during preschool years also predicted outcomes across all models. (Authors' Abstract)

Ruopp, R. (1979). *Executive summary: Final report of the national day care study. Children at the center*. MA: U.S. Department of Health, Education, and Welfare. Full Text

Country	USA
Sample Size	1800
Age	Preschool
Database	NDCS
Design	Prospective No Follow-up Observational
Factors	Adult-Child Ratio Teacher Education

This executive summary of the final report of the National Day Care Study (NDCS) of March 1979 summarizes findings and policy recommendations, gives the background to the study and presents findings on quality and costs of center-based day care. Recommendations for federal regulations for preschool children, infants and toddlers, center characteristics, regulatory language and monitoring guidelines are indicated. The major cost/effects study of center-based day care for preschool children was conducted between 1974 and 1978 in 67 day care centers in Atlanta, Detroit and Seattle. Data from the major study and two supporting studies, a smaller research effort focusing on center day care for infants and toddlers and a national telephone survey of 3100 randomly selected centers, were analyzed. The NDCS found that higher quality care is associated with two low-cost ingredients (smaller groups of children and caregivers with child-specific education/training). The number of classroom staff per group (caregiver/child ratio) was not an important contributor to quality within the policy-relevant range of 1:5 to 1:10. Ratio was strongly related to differences in cost. Regulatory language and rules used to monitor compliance were found to influence center practices as much as the content of the regulations. The study concluded that revision of current federal day care regulations could allow the government to buy better

care at slightly lower cost. More children could be better served within current budgets. (*ERIC* Abstract)

Studer, M. (1992). Quality of center care and preschool cognitive outcomes: Differences by family income. *Sociological Studies of Child Development, 5*, 49-72. **Full Text**

Country	USA
Sample Size	95
Age	Preschool
Database	NLSY
Design	Prospective No Follow-up Observational
Factors	Adult-Child Ratio Teacher Education

Quality of care in child care centers & its relationship to receptive language skills are examined using data from the National Longitudinal Survey of Youth on a sample of 95 preschoolers. As hypothesized, quality of care (measured by group size & provider-child ratio), was not found to account for significant differences in preschoolers' cognitive abilities. However, a significant interaction was found to exist between quality of care, family income, & cognitive skills. In particular, preschoolers from low-income families were likely to have more favorable receptive language skills when placed in higher as compared to lower quality care, while no consistent relationship was found for children from other income groups. Family income & moderate hours of maternal work (1-39 as compared to no work or 40+ hours/week) were positively associated with preschoolers' language skills. (*Sociological Abstracts* Abstract)