The Florida Child Care Quality Improvement Study

1996 REPORT

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Brief Summary of Findings

The Florida Child Care Quality Improvement Study, conducted by the Families and Work Institute, investigates how Florida's new ratios and education requirements for early education and care affect children's development, parents' lives, and the early childhood marketplace. It consists of three interrelated studies: The Children Study, The Parent Study, and The Market Study. This report summarizes the findings of all three studies in 1992 and 1994 and reports new findings from The 1996 Children Study.

State legislation in Florida became effective in 1992, changing teacher-to-child ratios for infants from 1:6 to 1:4 and for toddlers from 1:8 to 1:6. In addition, originally effective in 1995 but extended to July, 1996, Florida required that for every 20 children in a child care facility there be at least one staff person with a Child Development Associate (CDA) Credential, a comparable CDA Equivalency, an experience exemption, or formal education that equals or is greater than the CDA Credential or CDA Equivalency.

Research on the impact of child care on children's development reveals that a warm and caring—or what researchers term a "sensitive"—relationship between the child and his or her child care providers is of central importance. Of comparable importance is what researchers call a responsive relationship: a teacher who responds to the child emotionally with a comforting or encouraging word, socially by helping the child learn to relate positively to others, and intellectually by helping the child think, ask questions, and express him/herself. Other features of child care such as the number of children each adult cares for and teaches (ratio) or the training and education of teaching staff simply make it more likely that the child will receive sensitive and responsive care. Because Florida changed the ratio and educational requirements for teachers, the state provided a natural laboratory to find out how these regulations affect children's development over time.

The Children Study sample in 1996 consists of approximately 150 licensed child care centers in four Florida counties: Pinellas, Duval, Broward, and Hillsborough. These counties were chosen by the study's Florida Advisory Board because they are representative of child care climates within the state.

In 1996, we found that:

Increased teacher education and ratio requirements significantly contributed to a number of positive outcomes in children's development in 1994 that continued to improve in 1996.

- Children's cognitive development had improved in 1994 and continued to improve in 1996 as evidenced by the fact that children engaged in more cognitively complex play with other children and with classroom materials.
- Children were also observed to be more securely attached to their teachers in 1994 and even more so in 1996, an indication of sound emotional development.
- In addition, children spent more time in learning activities in 1996 than in 1994.

Increased teacher education and ratio requirements also contributed to positive gains in the quality of early education and care in 1994 that continued to improve in 1996.

- Teachers were more responsively involved with children in 1996 than in 1994.

Other gains in children's development and in the quality of early education and care environment that occurred in 1994 were maintained in 1996.

- In 1994, we found an increased proficiency with language among children and a decrease in children's behavioral problems, including aggression, anxiety, and hyperactivity. These outcomes were maintained in 1996.
- The warmth and sensitivity with which teachers interacted with children had increased from 1992 to 1994; in 1996, teacher sensitivity remained at the same level as 1994, as did overall classroom quality.

In comparison with other national multi-site studies of the overall quality of early education and care, Florida has made positive strides.

- On a scale measuring classroom quality where a score of 1 equals inadequate, 3 equals mediocre, 5 equals good, and 7 equals excellent, Florida's scores increased from 4.17 on average in 1992 to 4.57 in 1996.
- The 1996 score for preschool classrooms was higher (4.67) than for infant/toddler classrooms (4.25).

- By comparison with Florida's 1996 score of 4.57, a 1995 study of early childhood classroom quality in four states revealed an overall quality rating of 4.0.

Thus, the Florida study reveals that while the ratio and educational requirements have brought important gains, there still remains a great deal of room for improvement.

Increased staff education and more rigorous ratio requirements did not have a marked negative impact on the child care marketplace nor did requirements significantly affect consumer costs during the 1992-1996 period.

- There was understandable concern that changing the ratios for infants and toddlers might lead centers to cut back on the number of infants and toddlers served. However, four years later this does not seem to be the case. Centers did not cut back on the number of children served, including the number of infants and toddlers.

- Between 1992 and 1996, 62 percent of centers had increased their fees. These increases were modest overall and not statistically significant for infants and toddlers where the ratio requirements were most stringent. The 1996 weekly average fees for infants were $72.24; for toddlers $81.97; for preschoolers $79.21; and for school-age children $53.80.

- The Parent Study, our 1992-1994 study of a representative sample of parents with children five-years-old and under (including those who used and who didn't use child care) drawn from birth records from the same four counties also provides useful information about market impact. We found that while child care costs for parents using child care did rise over this two year period, these increases were not larger for parents using center-based arrangements than for those using home-based arrangements (family child care or relative care in the child's home or in the home of the provider). Thus, fee increases seem unrelated to the regulatory changes that occurred only in center-based arrangements. Furthermore, despite these fee increases, the perceived burden of paying for child care among parents was actually reduced slightly, for both center and home-based care.

Because such dramatic improvement occurred between 1992 and 1994, and because changes in children's development and in the quality of early education and care showed some signs of leveling off between 1994 and 1996, we conducted a series of analyses to determine the reasons. We found that:

The greatest gains in children's development and in the quality of the early childhood education and care occurred when classrooms met professionally recommended ratios, which are higher than the new Florida ratios.

- To a lesser extent, improvements occurred when centers met Florida ratios. Thus, one explanation for the leveling off of improvement is that the Florida standards may not be high enough to continue to effect dramatic change.

- A second explanation has to do with compliance. While five percent of classrooms were out of compliance with the Florida ratios in 1994, a higher percentage—14 percent—were out of compliance by 1996. Fifty-two percent of classrooms met Florida ratio requirements in 1996 and another 34 percent met a higher standard (professionally recommended ratios). The compliance rates for classrooms serving infants showed an even more diverse pattern: 19 percent were out of compliance with Florida's ratio requirements, 14 percent met Florida's standards, and 67 percent met professional ratio standards.

- Perhaps the decrease in compliance was also related to center directors' attitudes about these new laws. A majority of center directors think that the new ratios are expensive (59 percent) without improving quality (63 percent), although the evidence from this study reveals that, in fact, more stringent ratios do improve quality.

Teachers with an advanced education (an AA, BA, or higher degree in early childhood education) had the highest scores in terms of children's development and classroom quality, which was rated between "good" and "excellent." However, in 1996 teachers with a CDA/CDA Equivalency were warmer and more sensitive, as well as more responsive with children, and had classrooms with higher quality than classrooms of teachers who had less than a CDA level education.

- A plausible explanation for the fact that quality did not improve as much as it had between 1992 and 1996 is that adherence to the CDA requirement was low. The effective date to meet the requirement was extended to 1996, immediately after data were collected for this study. Thus, our study provides information about adherence to this requirement just before it became law. In 1996, only 44 percent of centers met the immediately forthcoming state requirement of one CDA (or higher) educated staff for every 20 children in any given center. On the other hand, the educational level of staff had increased. In 1992, 47 percent of center staff had high school and minimal early childhood training. By 1996, that number had dropped to 39 percent.

- As with the ratio requirement, many directors believe that the CDA makes child care expensive (62 percent), is confusing (26 percent), and is not enforced (23 percent).

- About half of the teachers (49 percent) not pursuing the CDA requirement are planning to leave the field, though most say it is not because of the CDA requirement. Other studies have found that low salaries contribute to high staff turnover. The average 1996 salary of staff was $6.93 per hour.

- High levels of turnover also make adherence to the new law more difficult. Turnover rates were 24 percent in 1992, and 30 percent in 1994 and 1996. In fact, only two percent of the teachers observed in 1992 were in the same classrooms or even in the same centers in 1996.

The Florida Child Care Quality Improvement Study shows that regulatory improvements have a powerful capacity to affect children's outcomes and improve the quality of their early education and care. Importantly, this study also reveals that the more stringent the improvement in staff-to-child ratios and in the educational level required of teachers, the greater the impact on children's outcomes and on the overall quality of their educational environment. Without adherence to new regulations, however, the intended goal of improving children's lives can't be achieved. Thus, regulatory change should include efforts to ensure a cultural change that supports such improvements as well as practical efforts to ensure these improvements are fiscally supported and enforced.

Background

The Florida Child Care Quality Improvement Study is one of a series of studies conducted by the Families and Work Institute that investigate the impact of efforts to improve the quality of child care on children's development, parents' well-being and productivity, and the early childhood marketplace. These studies, conducted with its research partners at the University of California at Los Angeles, Purdue University, New York University, Georgia State University and Quality Assist, have become all the more important given recent attention to the brain development of young children. Research in neuroscience has shown that warm and responsive care by parents and other teachers has "decisive, long lasting impact on how people develop, their capacity to learn, and their capacity to regulate their emotions" (p. 27, Shore, 1997). In contrast, three multi-site observational studies conducted between 1988 and 1994 have shown that 12 to 14 percent of children are in child care arrangements that promote their growth and learning while 12 to 21 percent are in child care arrangements that are unsafe and harmful to their development. For infants and toddlers, the proportion in unsafe settings is even higher: 35 to 40 percent (Whitebook, Howes, and Phillips, 1990; Galinsky, Howes, Kontos, and Shinn, 1994; Kontos, Howes, Shinn, and Galinsky, 1994; *Cost, Quality, and Child Outcomes in Child Care Centers,* 1995).

Research on the impact of child care on children's development reveals that a warm and caring—or what researchers term a "sensitive"—relationship between the child and his or her child care providers is of central importance. Of comparable importance is what researchers call a "responsive" relationship: a teacher who responds to the child emotionally with a comforting or encouraging word, socially by helping the child learn to relate positively to others, and intellectually by helping the child think, ask questions, and express him or herself. Other features of child care such as the number of children each adult cares for and teaches (ratios) or the training and education of teaching staff simply make it more likely that the child will receive sensitive and responsive care.

To date, Families and Work Institute child care studies have examined the impact of improving ratios and group size in Georgia (Sibley, Abbott-Shim, and Galinsky, 1994), family child care training in North Carolina, Texas, and California (Galinsky, Howes, and Kontos, 1995), tuition assistance for parents and professional development for center directors in Hawaii (Families and Work Institute, 1997), and combining Head Start and child care in Missouri (Bond, 1997). *The*

Florida Child Care Quality Improvement Study, begun in 1992, has been investigating how Florida's new ratios and education requirements affect the quality of early education and care and children's development, parents' perceptions of quality, and the child care marketplace.

Data collection began in 1992 when Florida legislation changed teacher-to-child ratios for infants from 1:6 to 1:4 and for toddlers from 1:8 to 1:6 and required that every child care facility have at least one staff person for every 20 children with a Child Development Associate (CDA) Credential, a comparable CDA Equivalency, an experience exemption, or a formal education requirement that is equal to or greater than the CDA Credential or CDA Equivalency. Three interrelated studies were conducted: The Children Study, The Parent Study, and The Market Study.

FINDINGS FROM THE CHILDREN STUDY, 1992–1994

The Children Study sample consists of approximately 150 licensed child care centers in 1992 and 148 licensed child care centers in 1994 in four counties: Pinellas, Duval, Broward, and Hillsborough. Among these centers, 128 centers were seen at both times and 20 centers were replacements because the original centers were no longer offering service or refused to participate. There were no differences in the centers that remained in the sample and those that were replaced. Within each county, we randomly selected child care centers serving middle to high and low-income families. The director of each center was interviewed. We also observed three classrooms in each center, interviewed the teacher in charge, assessed the quality of care and education provided, and observed two children, one girl and one boy, randomly selected. A total of 880 children were observed.

In 1994, two years after the legislation was passed, there were impressive accomplishments (Howes, Smith, and Galinsky, 1995):

- Children's intellectual and emotional development was improved. Children engaged in more complex play with objects and with each other. They were observed to be more securely attached to their teachers, which means they felt more safe and secure to explore, play and learn. Children were also found to be more proficient with language and had fewer behavior problems.

- Teachers were more sensitive and responsive. This was significant because in order to prosper and learn in early childhood settings, children need teachers who care for and about them. They also need teachers who are tuned into them and respond in ways that capitalize on "teachable moments" such as bringing out a book about fire engines for the child who was captivated by a passing fire engine on the way to preschool.

- Teachers' negative management styles declined. Teachers were less likely to respond to a child's misbehavior by yelling, scolding, threatening, being sarcastic, smacking, or hitting. In some centers, this behavior was reduced by 75 percent.

- Global quality improved significantly from 1992 to 1994. Between 36 and 42 percent of the children in this Florida study were in growth-enhancing early childhood arrangements. This was an impressive accomplishment considering that other community-based studies have found only 12 to 14 percent of the children in child care to be in arrangements that promote their growth and learning.

FINDINGS FROM THE PARENT STUDY, 1992–1994

Parents from the same four counties as were assessed in The Children Study—Broward, Duval, Hillsborough, and Pinellas—were interviewed by telephone before the regulatory changes were implemented in 1992 and in 1994, after changes affecting staff-child ratios were in place. These were not parents using the centers in the Children's Study, but a random sample of parents with children five and under taken from birth records (with new samples drawn at each time of data collection). A total of 849 parents completed usable interviews in 1992 and 868 in 1994. By design, three quarters of the families currently used child care for the target child; the remaining quarter did not. Interviewers asked to speak to the parent who knew most about how the child spent the day; if both parents knew equally, the father was interviewed in order to have both men and women in the sample. The parent sample was thus approximately one quarter fathers. In 1994, special efforts were made to obtain additional minority respondents by oversampling in areas with higher concentrations of minorities. The sample of children was also somewhat older. Thus all comparisons of families at Time One and Time Two control for demographic factors: age of child, respondent's education and ethnicity (Latino, African American, or white) and family income (Shinn, Gulcur, and Clements, 1997).

Parents' attitudes towards the regulatory changes

Parents in 1992 and 1994 were asked whether they had heard about the regulatory changes for child care centers.

- Only 21 percent of parents in 1992 said they had heard that the regulations would be changing in the fall, and 23 percent in 1994 said that they had heard about the changes. The questions were phrased in the future tense in 1992 and in the present tense in 1994. The first stated: "One change in the Florida law requires there to be fewer children in the care of one adult. For example, under the old law, you had to have one adult present for

every 8 one-year-olds in a center. With the new law, you have one adult for every 6 one-year-olds. How do you feel about that change..." A second question stated, "Another change in the state laws requires teachers to have more training in child development." Overall, 90 to 93 percent of Florida parents sampled felt either very positive or somewhat positive about each of the changes at each time point, and only two to three percent felt very or somewhat negative.

Parents' knowledge of and satisfaction with ratios and training

- Parents reported fewer children for each teacher in their own children's classrooms after the new ratio regulations took effect, and they were more satisfied with the ratio.

Parents' reports of the cost of care

An important question is whether the new regulations led centers to increase the cost of care, particularly for the youngest children, where the changes in ratios were the largest.

- Surprisingly, the fees parents paid per hour were unrelated to their reports of the ratio of children-to-adults in their own child's classroom, both before and after controls for demographics.

- Fees did go up between 1992 and 1994. Costs increased $.38 per hour—over 20 percent—for the youngest children in center care, but only $.03 for older children in center care and $.06 and $.12 for younger and older children respectively, in home-based care. However, the increases for center care were not significantly larger than the increases in payments to home-based providers. ("Home-based care" includes family child care or relative care in either the child's home or—most often—in the provider's home.) Thus, fee increases seem unrelated to the regulatory changes which occurred only in center-based arrangements.

- We also asked parents, "In terms of your family finances, how much of a problem is it for you to pay this amount?" Families using home-based care perceived less of a burden than families using center care, but despite the increase in cost from 1992 to 1994, the perceived burden of paying for care was actually reduced slightly, for both center care and home-based care.

Difficulty in finding care

- All parents who used some form of child care for their children were asked whether they would have preferred some other form of care at the time that they enrolled their child in the present arrangement. Over a quarter of the families—33 percent in 1992 and 24 percent in 1994 said yes. Only a small number, seven percent at each time, preferred a child care center to their current arrangement. Thus, there is no evidence that these changes led parents away from center care.

- We also asked parents how long they had to look for care before settling on their present arrangements, and how easy or difficult it was to find care. Among families using child care centers, parents reported it was somewhat easier to find care in 1994 than in 1992; thus, there is no evidence that finding care became any harder as a result of the regulatory changes.

Choice of child care setting

- If center-based care became harder to find or to afford as a result of the regulatory changes, we might expect families to have switched from centers to other forms of care. Families were sampled on the basis of birth records, not on the basis of the type of child care they used, but the percentage of families using centers was fairly stable in 1992 and in 1994. Thus, there is no evidence that the regulatory changes triggered an exodus from center care. The biggest predictor of type of care used was the age of the child.

Lack of affordable care as a barrier to use of care or employment

- By design, a quarter of our sample did not use child care for the target child. We asked parents why not. The most common answer was that the parent preferred to stay home with the child. An eighth of the sample said that they could not afford care at each time, and only a small percent said that they could not find good care. These numbers were quite stable across the two periods of data collection.

- Parents who were not employed, but who said that they would like to have a paid job within the next five years, were asked, “How big an obstacle would you say that finding quality child care is to your returning to work?” Finding child care loomed as a big obstacle or somewhat of an obstacle to employment for two thirds of this group of parents, but was no more an obstacle in 1994 than in 1992.

FINDINGS FROM THE MARKET STUDY, 1992–1994

The purpose of The Market Study was to assess the impact of Florida's 1991 statutory changes on the child care market in terms of supply, costs, children served, and staffing characteristics. In 1992, a market survey provided baseline information on the Florida child care market. The 1994 survey provided comparative information about market impact, two years after implementation of some of the child care regulatory changes.

During the fall of 1994, the survey was distributed to 347 child care centers in four clusters: Cluster I included Broward, Henry, and Collier counties; Cluster II included Pasco, Pinellas, Hillsborough, and thirteen rural counties north of Pasco; Cluster III included Duval and three rural counties west of Duvall; and Cluster IV included Leon and ten rural counties west of Leon. Overall, 51 percent (n=178) of the centers responded.

The samples in 1992 and 1994 were similar in most respects except for auspices. In the 1992 sample, 71 percent of the responding centers were for-profit and 29 percent were non-profit. In 1994, 54 percent were for-profit and 46 percent were non-profit. This survey found the following (Sibley and Abbott-Shim, 1996).

Ease of Implementation

The 1992 respondents were asked to project how easy or difficult it would be for their center to meet the revised regulations and the 1994 respondents were asked to report how easy or difficult it was to comply with the regulatory changes.

- In 1992, approximately 42 percent of the centers reported that they expected compliance with the new rules to be easy to very easy. Subsequently, in 1994, 44 percent of centers reported compliance was, in actuality, easy to very easy. In contrast, 27 percent of the 1992 survey respondents expected compliance to be difficult to very difficult. However, compliance with the rules turned out to be less difficult than originally anticipated: in 1994, 16 percent reported that compliance was difficult to very difficult while 31 percent expected compliance to be "moderate" in 1992, 40 percent reported "moderate" in 1994.

Changes in Enrollment

- More than half of the centers, across all age categories, reported no changes in their enrollment. For those centers that did report changes in enrollment, the largest and most notable change was an increase in enrollment among four-year-old preschoolers and school-age children.

Changes in Child Care Fees

- Between 1992 and 1994, child care rates remained the same for some centers and increased for others. More than half of the responding centers reported no increases in their child care fees. A relatively small percentage (six percent) of centers decreased their child care fees. For those centers increasing their fees, the average increase in the cost of child care across age groups was $16.20 per week.

- Child care fees increased for a variety of reasons including: additional classroom staff hired to meet new ratio requirements (24 percent), staff benefits increased (19 percent), expenses for staff training increased (25 percent), facilities were upgraded to meet new requirements (12 percent), additional staff with higher qualifications were hired to meet requirements (26 percent), staff wages were increased (39 percent) and routine cost of living (50 percent).

Changes in Teachers' Wages

- In 1992, the median, annual wage for child care teachers in Florida was less that $11,000. Approximately 87 percent of teachers earned less than $14,000 annually. In 1994, 25 percent of surveyed administrators reported that salaries had changed since 1992, while 75 percent reported no changes. In 1994, 83 percent of teachers continued to be paid less than $14,000 per year.

Changes in Teacher Education

- In 1994, 62 percent of the survey respondents reported that the educational level of the teachers working in their center had increased since 1992, while 38 percent indicated no change at all. Overall, there were fewer teachers with high school or equivalent diplomas and more teachers having attended at least some college. However, for both years, only 15 percent of teachers had a bachelor's degree. The 1992 figures showed that there were an

average of three CDA credentialed teachers per center, the 1994 survey showed a slight increase with an average of four CDA teachers per center.

- Training expenses appear to be shared between centers and teachers. However, with the exception of in-service training, most administrators reported that teachers pay for their own training.

SUMMARY

In sum, the results in 1994 indicate that the ratio and educational quality improvements in Florida positively affected children's outcomes and classroom quality. Importantly, these regulatory changes did not seem to have a negative impact on the affordability or accessibility of center-based child care for parents, who were overwhelmingly positive once they found out about the improvements. For centers, most directors reported that compliance was very easy, easy or moderate. Overall, these changes did not seem to have very negative repercussions on the child care marketplace.

The questions posed by policymakers and practitioners alike are: Will such improvements last? Why or why not? The 1996 Children Study allows us to address these questions.

Florida's New Ratios and Education Requirements

RATIOS

Florida offers an exemplary site for a significant policy study of the impact of quality improvement efforts. In 1991, state legislation was enacted which changed staff-to-child ratios for young children in center-based settings. The ratio regulations that became effective in October 1992 are depicted in Table 1.

TABLE 1: FLORIDA'S STAFF-TO-CHILD RATIO REQUIREMENTS

Children's Ages	Pre-1992 Standards	1992 Standards
0-1 years old	1:6	1:4
1-2 years old	1:8	1:6
2-3 years old	1:12	1:11
3-4 years old	1:15	1:15
4-5 years old	1:20	1:20
5 years or older	1:25	1:25

Source: Florida Children's Forum (1995, 1998)

Although these standards are a very impressive improvement for Florida, it is important to compare them with professionally recommended standards. The professional standards we are using have been adapted from those recommended by the National Academy of Sciences (Hayes, Palmer, and Zaslow, 1990). As shown in Table 2, Florida's ratio standards are comparable to professionally recommended ratios for infants and toddlers, but are less stringent for children two years old
and older.

TABLE 2: COMPARISON OF FLORIDA'S STAFF-TO-CHILD RATIO

REQUIREMENTS AND PROFESSIONALLY RECOMMENDED STAFF-TO-CHILD RATIOS

Children's Ages	Florida 1992 Ratio Standards	Professionally Recommended Ratios
0-1 years old	1:4	1:3
1-2 years old	1:6	1:5
2-3 years old	1:11	1:6
3-4 years old	1:15	1:8
4-5 years old	1:20	1:8
5-6 years old	1:25	1:10

Source: Families and Work Institute (1995, 1998)

Florida's new ratios for infants and toddlers put the state in the median among other states, while its ratios for older children place Florida near the bottom. Table 3 compares Florida's staff-to-child ratio requirements with those of other states.

TABLE 3: COMPARISON OF FLORIDA'S STAFF-TO-CHILD RATIO REGULATIONS WITH THOSE OF OTHER STATES

Children's Ages	Number of States[1] with the Same or Better Ratios Than Florida	Number of States with Worse Ratios Than Florida
6 weeks[2]	32	17
9 months	32	19
18 months	37	14
27 months	45	6
3 years old	50	1
4 years old	51	0
5 years old	51	0

[1] *Includes the District of Columbia*

[2] *Only 49 states permit center-based child care for 6-week-old children*

Source: The Center for Career Development in Early Care and Education (1997)

CDA CREDENTIALS AND CDA EQUIVALENCY

The new laws also required that effective July 1, 1995, (and later extended to July 1996) one staff person for every 20 children must provide documentation to meet one of the following four criteria: (1) Child Development Associate (CDA) Credential, (2) CDA Equivalency, (3) formal education qualification or exemption, or (4) experience exemption. These criteria are described below:

1. *National Credential: The Child Development Associate (CDA) Credential*

   This credential is issued by the Council for Early Childhood Professional Recognition, and is recognized throughout the United States and the world.

   To become a candidate, a person must be 18 years old and have 480 hours experience working with young children. This person also must have 120 clock hours at the *post-secondary* educational level. These can be obtained through a variety of settings, including the early childhood setting in which he or she works, a child care resource and referral agency, a community college, a technical college, or a 2–4 year college.

2. *CDA Equivalency Options*

   Candidates must graduate from an approved CDA Equivalency Program. These training programs have been determined to exceed or be equivalent to the CDA Credential in the state of Florida.

3. *Formal Education Qualifications or Exemptions*

   Candidates must provide documentation for one of the following:

   a. B.A., B.S. or advanced degree in early childhood education/child development, family and consumer sciences (formerly home economics/child development) or elementary education with certification to teach any age birth through 6th grade.

   b. A.S. or A.A. degree in child development.

   c. Associate degree or higher with 6 college credit hours in early childhood/child development plus 480 hours experience in a child care setting serving children from birth through eight years of age.

   d. A CDA Exemption (Waiver) certificate from a participating Community/Junior College.

4. *The "Grandfather" Clause*

   This one-time option is for individuals employed in child care on July 1, 1995 (later extended to July 1996), with a high-school diploma or GED and who have 10 years of experience working with children since July 1, 1980. This experience exemption is not a CDA Equivalent, but staff members who have been "grandfathered" are counted as meeting the 1:20 ratio requirement.

Teachers' Experiences with the CDA Credential or CDA Equivalency Requirement

Teachers interviewed in this study report that 310 hours on average are required for the National CDA and 297 hours on average for the CDA Equivalency option with most classes meeting once a week. Forty-six percent of those receiving a National CDA and 80 percent of those receiving the CDA Equivalency believe that they receive college credit for this work and virtually all report that these credits will be accepted if they continue their education. The cost of the program is $102.32 for the National CDA with an additional $46.37 spent on books and materials. The cost of the CDA Equivalency is $99.55 with $49.86 spent on books and materials. The most frequent form of financial assistance is financial assistance from one's workplace for the National CDA (29 percent) and a Pell grant for the CDA Equivalency (33 percent). Further information about teachers' experiences with the CDA and CDA Equivalency is presented in Appendix A and Table 26.

The Children Study, 1996

PROCEDURES, MEASURES AND SAMPLE

The Florida Child Care Quality Improvement Study was designed to examine how the changes in Florida's child care licensing standard affect the provision of quality care and education for young children. In order to assess the impact of these licensing changes, data were collected from teachers and directors. Children were observed in four Florida counties at three different times:

- *Time One:* prior to instituting any changes in the regulations (February-June 1992).
- *Time Two:* two years later, and l7-20 months after the ratio requirements went into effect (February-May 1994).
- *Time Three:* two years later, and originally seven to 11 months after the CDA Credential or CDA Equivalency Requirement regulation was to go into effect (February-June 1996). The CDA requirement, however, was extended to July 1996, immediately after data collection was complete.

We assessed child care quality, children's experiences and development as well as teacher characteristics using a multi-measure, multi-informant approach.

Sample Selection

The sample for the study consisted of 150 child care centers in Florida. Child care centers in four different counties (Pinellas, Duval, Broward, and Hillsborough) participated in the study. These counties represent different and representative child care climates within the state. Within each county, we randomly selected child care centers to match the distribution of centers serving high and low income families in urban and rural areas under for-profit and non-profit auspices. Centers with at least 50 percent subsidized children were considered to serve low-income families. Centers with less than 50 percent subsidized children were considered to serve high-income families.

Procedures

Within each randomly selected child care center, two types of data were collected: paper and pencil questionnaires and observations. Interviews were conducted with center directors and with the lead teacher in each observed classroom. Classroom quality in three classrooms in each center—one infant, one toddler, and one preschool classroom if these age groupings were present—was assessed via observation. These observations captured several aspects of quality. The number of adults and children in the setting were recorded at several different times to obtain adult:child ratio and group sizes. The quality of caregiving and activities provided for children were assessed using well-established rating scales. The teacher's behavior toward the children in her class was assessed with specific attention to her sensitivity, harshness and degree of detachment. In 1996, 454 teachers
were observed.

In addition, detailed observations were made on two randomly chosen children within each classroom. Each child needed to be at least 10 months of age, so that all child assessments could be reliably made. In 1996, we observed 868 children. These child-focused observations addressed the quality of the teacher-child relationship, and the child's interactions with the teacher, with peers and with objects (toys and classroom materials). In addition, the types of activities in which the child was engaged were coded. For the observations of the child's interactions with the teacher, with peers and with objects, and the child's activities, three five-minute samples of behavior were collected. Each five-minute observation was broken down into fifteen separate 20-second intervals of time, continuously coded to equal five minutes. Observers spent several hours in each classroom, spacing the child observations out over the course of their visit.

If the observed child was age 30 months or over, the child's teacher was asked to complete two assessments of the child: one focused on behavior problems and the other focused on the child's communication abilities.

A team of two observers/ interviewers were assigned to each child care center. Each researcher was trained to collect all types of data. Person A completed the following tasks: recorded adult:child ratios, conducted child observations (including the quality of the child-teacher relationship), and issued the teacher assessment forms for children 30 months and older. Person B completed the

following tasks: conducted observations of the quality of the classrooms, observed the sensitivity, harshness and detachment of the lead teacher, and conducted the teacher and director interviews.

In summary, directors provided data about the centers and teachers, teachers provided information about themselves and in some cases about the children, and classroom observations made by researchers yielded information on the quality of care, children's activities and relationships in child care.

Measures

The measures selected for this investigation are based on a thorough knowledge of research dealing with the affects of child care on children and thus represent the most significant social, emotional, environmental, and cognitive domains as described below. Further information on the measures used can be found in Appendix B.

Teacher-Child Relationship

Research shows that the most important ingredient of high quality child care and education is the relationship between the teacher and the child. We assessed four essential components of this relationship:

Attachment to primary teacher. Children cannot prosper and learn in a child care setting unless they feel safe and secure with their teacher. This particular emotional domain is measured by observing children's behaviors indicating that they can use the teacher as a secure base for exploration. The instrument we used was the Waters Attachment Q-Set (AQS). To obtain security scores the raw scores from the AQS were correlated with the criterion scores provided for security by Waters (1990). The correlation coefficients are the children's security scores. Security scores can vary from -1.0 to 1.0. A higher score indicates greater security.

Teacher sensitivity. Children in group care require physical and emotional nurturing as well as teaching. In fact, some child care professionals describe their jobs as part nurturer and part teacher. We used the sensitivity subscale of the Arnett Scale of Teacher Sensitivity as our measure of teacher sensitivity.

Teacher style. The ways in which adults handle discipline and other interactions appear to influence children's concurrent and subsequent adjustment. We assessed the teachers' interaction styles with two additional subscales of the Arnett Scale of Teacher Sensitivity and by specific observations of interaction. The two subscales measure the extent to which a teacher is *harsh* or *detached* in her behavior with children.

We observed teacher behavior in the following way: 1) *initiates positive*—the number of intervals in which the teacher smiles, vocalizes, or touches the child; 2) *responds positive*—the number of intervals in which the teacher responds in a positive manner to a social bid from the child; 3) *positive discipline*—the number of intervals in which the teacher verbally intervenes, redirects the child, or reminds the child of the rules for behavior; and 4) *negative discipline*—the number of intervals in which the teacher handles the child's problem or misbehavior in a negative way such as yells, criticizes, scolds, reprimands, threatens, uses sarcasm, smacks, yanks, spanks or pinches.

In addition to these attributes of teacher style, we also observed instances of teachers' facilitating peer interaction; encouraging cooperative peer play by suggesting solutions to social problems; and engaging in language play, including rhyming games, reading one-on-one and social conversation.

Teacher involvement. Children learn most readily through exposure to a responsive adult who is reciprocally involved with them; that is, someone who engages in the give and take of verbal and social interaction by asking children questions and listening to their answers, responding to their overtures, and encouraging them to think, to pursue play, and to learn by using the adults in their environment as resources. To assess teacher involvement, we used the Howes Adult Involvement Scale. We observed three levels of responsive teacher involvement: 1) *simple responses to overtures*; 2) *elaborated exchanges*; and 3) *intense reciprocal play.*

The opposite of reciprocal involvement is *ignoring* the children or being *nonresponsive and directive*. An example is giving the children orders without regard for what they are feeling, saying or doing (e.g., "Everyone stop playing and line up to go outside!"). We observed both ignoring and nonresponsive directive behaviors.

Using the Howes Adult Involvement Scale, including responsive and nonresponsive involvement, we created a single measure of teacher involvement comprised of the percent of intervals we observed the child in which he or she was within three feet of the teacher and the teacher-child

interaction was at least simple. This score is called *percent responsive involvement* and is considered part of classroom quality.

Classroom Quality

Global quality. Overall classroom quality was measured by the Harms and Clifford (1980) Early Childhood Environment Rating Scale (ECERS) and its infant toddler version (ITERS). The ECERS and the ITERS rate classrooms on six areas of caregiving practice: space, furnishings, basic needs, language and reasoning, learning activities, social development, and adult needs. These measures use a seven-point scale. An average item score was calculated for each classroom. This score was then categorized so that classrooms with mean scores less than 3 were considered unacceptable in quality, classrooms with mean scores of 3 or more, but less than 5, as acceptable in quality and classrooms with mean scores of 5 or more considered good in quality.

Children's Outcomes

Assessments were made of the children's development to ascertain their well-being. We examined their language and communicative development with the Adaptive Language Scale, their behavior problems with the Behar Preschool Behavior Questionnaire, their complexity of peer interaction with the Howes Peer Play Scale, and the complexity of their cognitive play with the Rubenstein and Howes Object Play Scale. These instruments are accepted as reliable, valid, and well-established in the child development field. In addition, we recorded the activities of children with objects and materials.

Children's play experiences. We created 11 coding categories for children's activities in child care based on pilot observations. These were: open-ended art (coloring, painting, or play dough with no model or finished product intended); product-oriented art (adult directed art activities, art with models such as coloring books or paint with water books); manipulative (puzzles, Legos®, table toys, bristle blocks, shape sorters, etc.); blocks (any block activity including unit, large cardboard, hollow blocks, etc.); fantasy play (play with action figures, dolls, dress-up clothes, housekeeping corner, etc.); looking at or reading books to self; being read to; listening to a story (on record, tape, or video); music (dancing or using instruments); gross motor (running, skipping, wheel toys, climbing, etc.); group (a short circle time); rote (drill and practice on academic tasks).

We reduced these 11 activities into five clusters. These clusters were: 1) creative, fantasy play, blocks, and open-ended art; 2) language arts, looking at or reading books to self, being read to, listening to a story (on record, tape, or video), music, and group; 3) didactic teaching, rote and product-oriented art; 4) gross motor; and 5) manipulatives. Each child received a score for the percent of the observation period they were involved in these activities.

Play with objects. The child's activity with objects in each observational interval was rated on a five-point scale devised by Rubenstein and Howes (1989). The scale rates increasing complexity of cognitive play from: 1) oral contact and passive holding through 3) active manipulation and 5) the exploiting of the unique property of the object for creative or unusual uses. The object play scale points were mutually exclusive and the highest possible observed scale point was recorded in each interval. This scale is based on Piagetian notions of cognitive development whereby increasingly complex play is assumed to represent increasingly complex cognitive activity. Mean scores on this measure are positively correlated with the Bayley Mental Development Index (Bond, Kelly, Teti, and Gibbs, 1983). A measure of the mean level of cognitive activity was used to describe cognitive play complexity. Mean level of cognitive activity was calculated by weighting the frequency of play at each level by the scale point, summing the weighted frequencies, and dividing by the total frequency of play.

Play with peers. We used the Revised Peer Play Scale (Howes and Matheson, 1992) to measure the complexity of peer play. The scale has eight scale points. The first scale points measure solitary play and low-level peer play: 1) *onlooker behavior*, 2) *proximity to peer without interaction*, and 3) *parallel play* when the target child and a peer are within three feet of each other and engage in the same activity but do not acknowledge each other. The last scale points capture: 5) *interactive peer play* which is parallel play with eye contact; 6) *simple social play,* complementary and reciprocal play; as well as two levels of pretend play: 7) *cooperative social pretend* with the observed child and another child enacting complementary roles; and 8) *complex social pretend play* in which the observed child and a peer demonstrate both social pretend play and meta-communication about the play. Complementary-reciprocal social play, cooperative pretend play and complex pretend play are considered competent forms of play with peers (Howes and Matheson, 1992). The peer play scale points were mutually exclusive and the highest possible observed scale point was recorded in each interval. From the coded peer play we created a measure of the *mean level of peer play* to describe peer play complexity. Mean level of peer play was calculated by weighting the frequency of play at each level by the scale point, summing the weighted frequencies, and dividing

by the total frequency of play. We also created a score for *percent solitary play* and *percent unoccupied*.

In addition to our observational measures of children, teachers completed two questionnaires when target children were 30 months or older.

Adaptive language. The Adaptive Language Inventory (ALI) (Feagans and Farran, 1979), was developed for teachers to rate children's use of language in the classroom related to narrative and discourse skills. Preschool ALI scores have been shown to predict second grade reading achievement (Feagans, Fendt, and Farran, 1991). The ALI consists of 18 items, each rated on a four point scale. A higher score indicates greater adaptive language.

Behavior problems. Teachers also completed the Behar Preschool Behavior Questionnaire (Behar and Stringfield, 1975). This questionnaire consists of 30 items, each rated on a four point scale. This instrument was specifically designed to screen preschool-aged children in group-care settings for *aggression, anxiety*, and *hyperactivity*. Behar reported interrater reliabilities of .93 (aggression), .60 (anxiety), and .94 (hyperactivity). In the current work, we used an average item score rather than the subscales. The average item score differentiated between children attending a therapeutic nursery and a normative sample in previous research. The average item score scale ranges from 1 to 4. A higher score indicates more problems.

INTEROBSERVER RELIABILITY

At three times all interviewers and observers participated in a week-long intensive training session. Interobserver reliabilities, established at the end of training, exceeded 85 percent agreement on all measures (Kappa range .82 to .91, median=.89).

SAMPLE

In 1992 we collected data from 150 child care centers; in 1994, 148 child care centers; and in 1996, 150 child care centers. One hundred seventeen of the baseline centers were seen at all three assessment points. We replaced 20 centers at Time Two because they were no longer offering

services (50 percent) or they refused to participate in the second round. We replaced a total of 22 centers at Time Three. Ten of these were Time Two replacements and 12 were replacements for the baseline centers. Replacements were again made because centers were no longer offering services (40 percent) or they refused to participate. Replacements were matched to the county, auspices, location, and population served of the original center. There were no significant systematic differences by county, auspices, population served, or location in centers that remained in the sample or were replaced. Sample characteristics at Times One, Two and Three of the study are described in Table 4.

TABLE 4: SAMPLE CHARACTERISTICS

	1992		1994		1996	
	(n=*150)*	%	(n=*148)*	%	(n=*150)*	%
Auspices						
Non-profit	81	54%	81	55%	81	54%
Profit	69	46	67	45	69	46
Location						
Urban	117	78	120	81	120	80
Rural	33	22	28	19	30	20
Population						
Subsidized	57	38	60	41	61	41
Nonsubsidized	93	62	88	59	89	59
County						
Broward	37	25	36	24	37	25
Duval	35	23	35	24	35	23
Hillsborough	42	28	41	28	41	27
Pinellas	36	24	36	24	37	25

Source: Families and Work Institute (1998)

ANALYSIS

We used hierarchical linear modeling to analyze the impact of changes in ratio and CDA regulation over time. Analyses for children's behavior used the children's ages as a co-variate.

Compliance with ratio regulations and adherence to the CDA regulations made independent contributions to outcomes. There was no significant interaction between ratio and CDA compliance. Therefore, we discuss the impact of ratio compliance and CDA compliance separately.

RESULTS

CHANGES OVER TIME IN CHILDREN'S OUTCOMES

The 1996 Children Study was predicated on a number of questions for which we sought answers.

Question: Will the gains found in children's development between 1992 and 1994 remain in 1996?

Finding 1: Some of the gains in children's intellectual and emotional development found in 1994 continued to improve in 1996, while other gains held steady.

Children of varying ages were observed in their classrooms in 1992, in 1994, and again in 1996. Though the actual children in the classrooms had obviously changed, the children were demographically comparable.

In 1994, we found that the changes in children's outcomes were impressive. It was possible, however, that these were temporary improvements—triggered by the increasing emphasis in Florida on quality in early education and care—and so the study design called for another

assessment in 1996, two years later. Some of these changes not only held steady, but continued to improve as shown in Table 5.

Children's cognitive development was higher in 1994 and higher still in 1996 as evidenced by the fact that they engaged in more cognitively complex play with other children and with objects.

Children were also observed to be more securely attached to their teachers in 1994 and even more so in 1996, an indication of sound emotional development.

Other positive findings in children's development from 1994 remained the same in 1996. These include an increased proficiency with language and a decrease in behavior problems, including aggression, anxiety, and hyperactivity.

TABLE 5: CHILDREN'S BEHAVIORS OVER TIME

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Mean level peer play	2.13	.86	2.22	.82	2.35	.92	6.33*** (1992>94>96)
Mean level object play	2.62	1.27	2.73	1.04	3.06	.88	14.81*** (1992>94>96)
Adaptive language inventory	3.10	.69	3.26	.78	3.30	.79	NS
Behavior problems	1.44	.32	1.37	.30	1.38	.31	NS
Attachment security	.16	.20	.19	.20	.23	.20	3.03* (1992>94>96)

Peer play: 1=onlooker behavior; 3=parallel play; 5=interactive peer play; 8=complex social pretend play

Object play:1=passive use of object; 3=active manipulation; 5=using the unique property of the object for creative or unusual uses

Adaptive language inventory:1=low adaptive language use; 4=high adaptive language use

Behavior problems: 1=no problems: 4=many problems

Attachment security: -1.0=low attachment security; 1.0=high attachment security

** $p \leq .05$; *** $p \leq .001$; NS=Not Significant*

Source: Families and Work Institute (1998)

CHANGES OVER TIME IN CHILDREN'S ACTIVITIES

Question: *Will the 1994 gains made in what children did and how they spent their time in child care remain in 1996?*

Finding 2: Children were more actively engaged in 1996 than in 1994 and 1992. In addition, they were spending more time in learning activities.

Our observations of randomly selected children within classrooms included measures of children's activities and play experiences. We found that children were more likely to be actively engaged in activities and less likely to be unoccupied or onlooking in 1996 than in 1994 or in 1992.

TABLE 6: CHILDREN'S ACTIVITIES OVER TIME

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Unoccupied	.13	.25	.16	.28	.03	.07	30.54*** (1996<92, 94)
Onlooker	.29	.35	.32	.37	.08	.12	51.18*** (1996<92, 94)
Active engagement	.58	.52	.52	.46	.89	.76	27.54*
Solitary	.23	.25	.20	.24	.23	.25	NS
With peers	.77	.25	.80	.24	.77	.25	NS

Scores reflect percentage of time.

**p≤.05; ***p≤.001; NS=Not Significant*

Source: Families and Work Institute (1998)

Children's play experiences also changed over time. Children engaged in more creative activities and language arts, including looking at and reading books, used more manipulative materials, and took part in more large muscle (or gross motor) activities in 1996 than in 1994 or in 1992. All of these activities are associated with opportunities to learn in the early years. Children also spent less time in didactic activities in 1994 and 1996 than in 1992. There was no change in the time children spent watching television.

TABLE 7: CHILDREN'S PLAY EXPERIENCES OVER TIME

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Proportion of observation							
Creative	.09	.21	.12	.23	.24	.25	30.58*** 1996>92, 94)
Language arts	.13	.24	.12	.21	.17	.21	4.40** 1996>92, 94)
Didactic	.12	.27	.04	.13	.06	.15	12.31*** 1996<92, 94)
Gross motor	.09	.20	.12	.20	.19	.23	14.07*** 1996>92, 94)
Manipulatives	.08	.19	.09	.16	.21	.24	42.70*** 1996>92, 94)
TV	.02	.13	.02	.13	.01	.06	NS

Scores reflect percentage of time.

***p≤.01; ***p≤.001; NS=Not Significant*

Source: Families and Work Institute (1998)

CHANGES OVER TIME IN QUALITY

Question: Will the 1994 gains in teacher sensitivity and responsiveness and classroom quality remain in 1996?

Finding 3: Teacher sensitivity and classroom quality did not increase in 1996, neither did they decline. Overall, teachers were more responsive, however.

Studies, including recent brain research, have found that when adults are sensitive and responsive, children develop better. In 1994, we reported gains in teacher sensitivity. In 1996, while there were no statistically significant declines in teacher sensitivity, there were no gains either. The only finding that reached statistical significance for the four year period was in detachment. Teachers were rated as less detached in 1994 than in 1992 or in 1996. These findings are shown in Table 8.

TABLE 8: TEACHER SENSITIVITY AND STYLE OVER TIME

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Teacher							
Sensitive	2.83	.73	3.06	.70	2.87	.78	NS
Harsh	1.63	.54	1.55	.58	1.61	.55	NS
Detached	1.73	.71	1.51	.59	1.61	.69	5.23** (1994<92, 96)

Sensitive, Harsh, Detached: 1=very low; 4=very high

n=440

***p≤.01; NS=Not Significant*

Source: Families and Work Institute (1998)

As presented in Table 9, teachers engaged in more responsive involvement when children were near them in 1994 and in 1996 than in 1992.

Teachers made more positive initiations in 1996 than in 1992 or 1994. Teachers engaged in less positive management of children's behavior problems in 1994 and 1996 than in 1992 and they also engaged in less negative management over time. These seemingly contradictory findings can be explained by the fact that classrooms were running more smoothly and there were fewer behavior problems with the children that needed teachers' attention.

TABLE 9: TEACHER RESPONSIVE INVOLVEMENT WITH CHILDREN OVER TIME

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Proportion of time near teacher responsive involvement	.27	.33	.40	.35	.49	.33	17.85*** (1992<94, 96)
Positive initiations	3.13	6.37	2.62	4.72	2.44	4.42	5.52** (1996>92, 94)
Positive responses	2.08	8.62	2.20	3.85	2.52	5.05	NS
Positive management	4.41	8.18	1.92	3.04	1.81	3.44	34.58*** (1992>94, 96)
Negative management	1.06	3.87	.45	1.68	.39	1.81	3.31* (1992>94, 96)
Language play	2.39	5.83	1.90	4.19	2.14	5.07	NS
Facilitate peer interaction	.38	1.47	.82	2.60	.46	1.22	NS

Responsive Involvement: proportion of time. Other categories: frequency of occurrence over observation period.

**p≤.05; **p≤.01; ***p≤.001; NS=Not Significant*

Source: Families and Work Institute (1998)

Environmental quality was rated with either the ECERS for classrooms serving preschool children or ITERS for classrooms serving infants and toddlers. Although classroom quality increased between 1992 and 1994, there were no statistically significant increases in 1996, as seen in Table 10.

TABLE 10: CLASSROOM QUALITY ACROSS TIME

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Environmental rating							
ECERS	4.25	1.02	4.75	1.12	4.67	1.12	NS
ITERS	3.93	1.28	4.39	1.19	4.25	1.23	NS
Overall	4.17	1.10	4.65	1.14	4.56	1.17	NS

NS=Not Significant

n=440

Ratings: 1=inadequate; 3=mediocre; 5=good; 7=excellent

Source: Families and Work Institute (1998)

IMPACT OF IMPROVED RATIOS ON CHILDREN'S OUTCOMES AND QUALITY

Question: Why do the gains found in 1994 not continue to increase?

Finding 4: When classrooms met professionally recommended or, in some cases, Florida ratios, there were, in fact, gains in children's development and in quality.

A key feature of Florida's new child care regulations is their specification of the number of children to be cared for by each adult in six age groupings. These new regulations, while more stringent than prior regulations, are less stringent than ratios recommended by professional organizations such as the National Academy of Sciences (NAS) and the National Association for the Education of Young Children (NAEYC). A comparison of Florida's new ratios and professionally recommended ratios is presented in Table 2. The Florida ratios are increasingly different from the professionally recommended ratios in groups for older children.

Analyses were conducted in terms of ratio compliance. We used three classifications: 1) falling below Florida ratio standards (described in Tables as "Out of compliance"); 2) meeting Florida ratio standards (described in Tables as "Florida compliance"); and 3) meeting professionally recommended ratio standards (described in Tables as "Prof compliance").

Children's play with peers and with objects was higher in classrooms with professionally recommended ratios than in classrooms in compliance with Florida ratios or out of compliance with Florida ratios, as shown in Table 11.

TABLE 11: CHILDREN'S BEHAVIORS IN CLASSROOMS THAT DID AND DID NOT COMPLY WITH RATIO REGULATIONS

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Mean peer play							
Out of compliance	1.67	.79	1.87	.71	1.91	.68	4.04*
Florida compliance	2.37	.85	2.33	.81	2.50	.90	(Prof>FL, Out)
Prof compliance	2.76	.83	2.75	.82	2.86	.93	
Mean object play							
Out of compliance	2.08	.84	2.12	.86	2.11	.88	6.33***
Florida compliance	2.03	1.00	2.22	.74	2.40	.90	(Prof>FL, Out)
Prof compliance	2.33	.88	2.39	.81	2.56	.94	
Adaptive language inventory							
Out of compliance	3.04	.64	3.06	.64	3.10	.66	NS
Florida compliance	2.98	.53	3. 23	.73	3.24	.81	
Prof compliance	3.24	.78	3.28	.75	3.58	.80	
Behavior problems							
Out of compliance	1.40	.24	1.30	.24	1.45	.35	NS
Florida compliance	1.43	.31	1.37	.28	1.39	.30	
Prof compliance	1.47	.34	1.40	.32	1.37	.33	

TABLE 11 (CONTINUED): CHILDREN'S BEHAVIORS IN CLASSROOMS THAT DID AND DID NOT COMPLY WITH RATIO REGULATIONS

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Attachment security							
Out of compliance	.13	.22	.17	.21	.13	.25	NS
Florida compliance	.19	.20	.20	.21	.20	.23	
Prof compliance	.24	.22	.27	.20	.28	.22	

Peer play: 1=onlooker behavior; 3=parallel play; 5=interactive peer play; 8=complex social pretend play

Object play:1= passive use of object; 3=active manipulation; 5=using the unique property of the object for creative or unusual uses

Adaptive language inventory:1=low adaptive language use; 4=high adaptive language use

Behavior problems: 1=no problems: 4=many problems

Attachment security: -1.0=low attachment security; 1.0=high attachment security

**p≤.05; ***p≤.001; NS=Not Significant*

Source: Families and Work Institute (1998)

In terms of activities, children were more likely to be unoccupied in classrooms meeting no ratio standards than in classrooms meeting professional or Florida ratio standards.

Teachers were rated more sensitive, less harsh and less detached when classrooms were in compliance with professional ratio standards or Florida standards than when classrooms were not in compliance. Overall, however, teachers in classrooms complying with professional ratio standards had higher sensitivity ratings and lower harsh and detached ratings than teachers in classrooms complying with Florida ratio standards. These findings are shown in Table 12.

TABLE 12: TEACHER SENSITIVITY AND STYLE IN CLASSROOMS THAT DID AND DID NOT COMPLY WITH RATIO REGULATIONS

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Sensitive							
Out of compliance	2.65	.76	2.50	.76	2.49	.82	17.62***
Florida compliance	2.78	.73	2.98	.71	2.79	.76	(Prof>FL>Out)
Prof compliance	2.95	.70	3.21	.66	3.12	.71	
Harsh							
Out of compliance	1.77	.60	1.78	.60	1.80	.68	11.68***
Florida compliance	1.66	.55	1.60	.59	1.63	.55	(Prof<FL<Out)
Prof compliance	1.54	.50	1.46	.52	1.50	.46	
Detached							
Out of compliance	2.09	.75	1.65	.56	1.90	.84	13.74***
Florida compliance	1.73	.66	1.50	.62	1.67	.72	(Prof<FL<Out)
Prof compliance	1.63	.71	1.40	.54	1.40	.51	

Sensitive, Harsh, Detached: 1=very low; 4=very high

****p≤.001*

Source: Families and Work Institute (1998)

Environmental quality was higher when classrooms were in compliance with professional ratio standards or Florida standards than when classrooms did not comply. Classrooms complying with professional ratio standards had higher environmental quality than classrooms complying with Florida ratio standards, as shown in Table 13. The rating for a classroom that met professional standards in 1996 indicates that it is at a "good level," providing growth-enhancing experiences for children.

TABLE 13: CLASSROOM QUALITY IN CLASSROOMS THAT DID AND DID NOT COMPLY WITH RATIO REGULATIONS

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Environmental quality							17.29*** (Prof>FL>Out)
Out of compliance	3.63	1.06	3.78	1.07	4.19	1.09	
Florida compliance	4.11	1.02	4.52	1.18	4.33	1.12	
Prof compliance	4.42	1.10	4.87	1.08	5.03	1.10	

****p≤.001*

Ratings: 1=inadequate; 3=mediocre; 5=good; 7=excellent

Source: Families and Work Institute (1998)

In 1994 and in 1996, but not in 1992, teachers in classrooms that complied with professional ratio standards were more responsively involved than teachers in classrooms that complied with Florida or no ratio standards. In 1994 and in 1996, as well, teachers in classrooms that complied with Florida ratio standards were more responsively involved than teachers in classrooms that complied with no ratio standards.

Teachers in classrooms that complied with professional ratio standards made more positive initiations than teachers in classrooms than complied with Florida or no ratio standards. Teachers in classrooms meeting professional ratio standards engaged in more language play than teachers in classrooms meeting Florida or no ratio standards. Teachers in classrooms meeting Florida ratio standards engaged in more language play than teachers in classrooms not meeting any ratio standards.

Teachers in classrooms that complied with professional ratio standards made more positive responses than teachers in classrooms that met Florida or no ratio standards. Teachers in classrooms meeting professional ratio standards engaged in more positive management than teachers in classrooms meeting Florida or no ratio standards. Teachers in classrooms meeting professional ratio standards engaged in more facilitation of peer play than teachers in classrooms

meeting Florida or no ratio standards. Teachers in classrooms meeting Florida ratio standards engaged in more facilitation of peer play than teachers in classrooms not meeting any ratio standards. All of these findings are described in Table 14.

TABLE 14: TEACHER RESPONSIVE INVOLVEMENT IN CLASSROOMS THAT DID AND DID NOT COMPLY WITH RATIO REGULATIONS

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Proportion of time near teacher responsive involvement							2.48* (Prof>FL, Out)
Out of compliance	.22	.33	.23	.32	.41	.33	
Florida compliance	.28	.33	.37	.36	.46	.34	
Prof compliance	.28	.33	.44	.35	.53	.33	
Positive initiations							5.52** (Prof>FL, Out)
Out of compliance	2.11	5.85	1.66	3.09	2.96	5.46	
Florida compliance	2.33	4.97	1.84	3.86	2.35	4.77	
Prof compliance	4.24	7.62	3.37	5.36	4.46	4.14	
Positive responses							3.42* (Prof>FL, Out)
Out of compliance	1.02	3.59	1.83	2.79	1.04	1.67	
Florida compliance	2.84	6.10	1.92	3.66	1.74	2.85	
Prof compliance	4.82	9.13	2.48	4.10	3.11	6.03	
Positive management							NS
Out of compliance	3.81	7.73	1.41	2.95	1.36	3.96	
Florida compliance	3.34	6.92	1.65	2.58	1.36	2.55	
Prof compliance	5.62	9.20	2.24	3.41	2.10	3.78	
Negative management							NS
Out of compliance	1.23	3.47	.69	1.50	.42	1.41	
Florida compliance	1.31	4.45	.65	2.20	.39	1.20	
Prof compliance	.79	3.29	.33	1.27	.39	1.81	

TABLE 14 (CONTINUED): TEACHER RESPONSIVE INVOLVEMENT IN CLASSROOMS THAT DID AND DID NOT COMPLY WITH RATIO REGULATIONS

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Language play							10.96*** (Prof>FL, Out)
Out of compliance	1.23	3.47	.00	.00	1.22	2.98	
Florida compliance	2.82	6.65	1.15	2.85	1.25	3.67	
Prof compliance	2.32	5.42	2.76	5.15	2.73	5.75	
Facilitate peer play							3.99** (Prof>FL>Out)
Out of compliance	.36	1.02	.17	.66	.09	.36	
Florida compliance	.38	1.71	.62	2.11	.38	1.14	
Prof compliance	.36	1.20	.66	3.07	.54	1.31	

Responsive Involvement: proportion of time. Other categories: frequency of occurrence over observation period.

**p≤.05; **p≤.01; ***p≤.001; NS=Not Significant*

Source: Families and Work Institute (1998)

In sum, the patterns are very clear. The more stringent the staff-to-child ratio, the better the classroom quality.

COMPLIANCE WITH RATIO REGULATIONS

Question: If children's development and classroom quality are related to meeting ratio requirements, why are there not more overall gains, especially in the last two years?

Finding 5: One possible explanation is that compliance with the ratio requirement declined in 1996. Five percent of classrooms were out of compliance in 1994 compared with 14 percent out of compliance in 1996. Of these, infant classrooms were the most likely to be out of compliance with 19 percent out of compliance in 1996. In contrast, however, an impressive 67 percent of infant classrooms and 73 percent of toddler classrooms met professional ratio standards that year.

The proportion of centers in which all observed classrooms complied with ratio standards in each observation period is described in Table 15. The fewest number of centers out of compliance was in 1994, 17-20 months after the regulation went into effect. By 1996, 14 percent of the classrooms failed to comply with the ratio regulations. In contrast, the number of classrooms in compliance with professional, rather than Florida standards increased over time so that by 1996 over one-third of the centers had all observed classrooms in compliance with professional ratios.

TABLE 15: COMPLIANCE WITH RATIO REGULATIONS

	1992		1994		1996	
	Percent		Percent		Percent	
Proportion of classrooms in which all observed classrooms complied with ratio standards						
Out of compliance	22%		5%		14%	
Florida compliance	55		68		52	
Prof compliance	23		27		34	
Proportion of classrooms which complied with ratio standards						
Infant	*n=21*		*n=11*		*n=21*	
Out of compliance	29%		9%		19%	
Florida compliance	24		18		14	
Prof compliance	48		73		67	

TABLE 15 (CONTINUED): COMPLIANCE WITH RATIO REGULATIONS

	1992		1994		1996	
	Percent		Percent		Percent	
Toddler	*n=128*		*n=112*		*n=102*	
Out of compliance	17%		6%		11%	
Florida compliance	31		32		17	
Prof compliance	52		62		73	
Preschool	*n=244*		*n=213*		*n=167*	
Out of compliance	5%		2%		2%	
Florida compliance	55		58		41	
Prof compliance	39		39		57	
Mixed age			*n=71*		*n=46*	
Out of compliance	na		3%		9%	
Florida compliance	na		41		33	
Prof compliance	na		56		58	
	M	SD	M	SD	M	SD
Observed classroom ratio						
Infant	1:4.84	1:2.06	1:3.87	1:1.71	1:4.63	1:2.71
Toddler	1:6.64	1:3.49	1:5.88	1:2.53	1:5.99	1:3.79
Preschool	1:10.07	1:4.46	1:9.95	1:3.41	1:8.26	1:3.82
Mixed	na		1:9.07	1:4.54	1:7.97	1:3.38

Source: Families and Work Institute (1998)

The average observed ratio in classrooms of different age groups are also presented in Table 15. In 1996, each teacher cared for just more than four infants, about six toddlers, and slightly more than eight preschoolers.

Question: Why has there been a decline in meeting the ratio requirements?

Finding 6: Perhaps one explanation for the decline in meeting ratio standards is that the majority of directors think they are expensive without improving quality.

Director's evaluations of the ratio regulations can be seen in Table 16. Approximately half of the directors believe that the new regulations make care more expensive to provide (59 percent) without increasing quality (63 percent). Clearly, this opinion runs counter to our finding that the more stringent the ratio, the higher the quality. (The expense of these changes will be discussed later.) However 67 percent of the directors have concluded that the new regulations make the classrooms run more smoothly. Overall, 12 percent expect these new standards to be dropped.

TABLE 16: DIRECTOR EVALUATION OF RATIO REGULATION CHANGE

	Percent agree
What obstacles do you encounter with the new regulations regarding ratios?	
The new regulations are confusing	9%
The new regulations make care more expensive to provide	59
The new regulations are not enforced	4
The new regulations make the classrooms run more smoothly	67
With the new ratio regulations the care the center provides is	
Higher in quality	37
About the same in quality	63
I expect the new ratio regulation to be dropped	12

Source: Families and Work Institute (1998)

IMPACT OF IMPROVED EDUCATIONAL REQUIREMENT ON CHILDREN'S OUTCOMES AND ON QUALITY

Question: *Does the increased educational requirement have a similar effect on children's outcomes and quality as the ratio requirements?*

Finding 7: In 1996, teachers with a CDA/CDA Equivalency were more sensitive, more responsive and had higher quality classrooms than teachers with less than a CDA. However, teachers with more advanced education scored better on most of these measures than teachers with a CDA/CDA Equivalency.

As stated above, Florida's new laws require one teacher with CDA level training for every 20 children in a child care center, originally effective July 1995 and later extended to July 1996, immediately after data were collected for this study. There are three different ways to meet the CDA training requirement. The original way, the National CDA credential, was developed between the late 1960s and early 1980s as a specialized form of early childhood education. The National CDA credential can be obtained either through home study or more recently, through the community college system.

The CDA Equivalency was developed approximately seven years ago. This type of CDA training is quite similar to the National CDA, but trainees can take Equivalency classes through a wider variety of settings, such as their local child care resource and referral network or child care agency. Both the National CDA and the Equivalency are roughly equal to one year of community college education, specifically focused on early childhood education. The final way to meet the CDA requirement is through a waiver. Child care teachers who already have a four year college degree with some specialized early childhood education can apply for a waiver. Teachers with a four year college degree and no specialized training must take early childhood education classes to obtain a waiver.

Because classrooms that met the new ratio requirement were not more likely to adhere to the new educational requirement, we were able to analyze the findings for each improvement separately.

In the following Tables, "Less than CDA" indicates that the teachers have less education than a CDA/CDA Equivalency, "CDA" indicates that teachers have completed either the CDA or CDA Equivalency, and "More than CDA" indicates that teachers have more advanced education such as an AA, a BA or advanced degree in early childhood. Note that teachers who had an experience exception but less education than a CDA were placed in the "Less than CDA" category, in order to provide the most stringent test of the CDA requirement.

In all three years of data collection, teachers with more advanced education were rated as higher in sensitivity than teachers with CDA training. Teachers with CDA training were rated as higher in sensitivity than teachers with less than CDA training. There were no significant findings for CDA regulation compliance and teacher ratings of harsh or detached. See Table 17 for these findings.

TABLE 17: TEACHER SENSITIVITY AND STYLE IN CLASSROOMS THAT DID AND DID NOT ADHERE TO CDA REGULATIONS

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Sensitive							
Less than CDA	2.78	.74	2.92	.68	2.68	.84	4.51**
CDA	2.89	.73	3.10	.67	2.88	.76	(More>CDA>Less)
More than CDA	3.04	.52	3.27	.73	3.56	.66	
Harsh							
Less than CDA	1.61	.54	1.58	.61	1.64	.60	NS
CDA	1.56	.39	1.52	.56	1.63	.58	
More than CDA	1.57	.59	1.56	.57	1.52	.36	
Detached							
Less than CDA	1.77	.73	1.64	.57	1.87	.93	NS
CDA	1.75	.69	1.52	.59	1.59	.69	
More than CDA	1.63	.64	1.48	.62	1.42	.57	

Sensitive, Harsh, Detached: 1=very low; 4=very high

***p≤.01; NS=Not Significant*

Source: Families and Work Institute (1998)

There were no significant findings of the impact of the CDA requirement on children's outcomes.

As shown in Table 18, classrooms in 1992 with CDA level teachers or teachers with advanced education had higher environmental quality ratings than classrooms with teachers with less than a CDA. There were no differences in environmental quality between classrooms with CDA level teachers and teachers with more advanced training.

In 1994 and 1996, classrooms with CDA level teachers or teachers with more advanced education again had higher environmental quality ratings than classrooms with teachers with less than a CDA. Overall, in 1994 and 1996 classrooms with teachers with more advanced education had higher environmental quality ratings than classrooms with CDA teachers. It is important to note that the average quality rating in 1996 for a classroom with a teacher with advanced education is rated between "good" and "excellent."

TABLE 18: CLASSROOM QUALITY IN CLASSROOMS THAT DID AND DID NOT ADHERE TO CDA REGULATIONS

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Environmental quality							2.36* (1992: More, CDA > Less; 1994 and 1996: More>CDA>Less)
Less than CDA	3.96	1.10	3.98	.89	4.05	1.17	
CDA	4.67	.89	4.66	.97	4.61	1.12	
More than CDA	4.58	1.02	4.95	1.08	5.24	.88	

$p \leq .05$

Ratings: 1=inadequate; 3=mediocre; 5=good; 7=excellent

Source: Families and Work Institute (1998)

The findings for teacher responsiveness are shown in Table 19. In 1992 but not in 1994 or 1996, teachers with more than a CDA were more responsively involved than teachers with a CDA or less. In 1994 and 1996, teachers with a CDA were similar to teachers with more than a CDA in responsive involvement and both of these groups of teachers were more responsively involved than teachers without a CDA.

Teachers with more than a CDA made more positive responses than teachers with a CDA or less. Teachers with more than a CDA engaged in more positive management than teachers with a CDA or less.

TABLE 19: RESPONSIVE INVOLVEMENT OF TEACHERS BY EDUCATIONAL LEVEL

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Proportion of time near teacher responsive involvement							2.96* (1992: More>CDA, Less; 1994 and 1996: More, CDA>Less)
Less than CDA	.26	.33	.37	.35	.46	.33	
CDA	.23	.32	.44	.35	.51	.34	
More than CDA	.31	.35	.42	.37	.52	.32	
Positive initiations							NS
Less than CDA	2.72	5.57	2.31	3.88	3.05	5.94	
CDA	4.97	8.09	3.30	5.93	2.05	3.00	
More than CDA	3.60	7.50	2.49	4.65	2.51	4.62	
Positive responses							3.03* (More>CDA, Less)
Less than CDA	3.60	7.68	1.93	3.34	1.97	3.58	
CDA	4.34	9.38	2.96	5.11	2.74	5.86	
More than CDA	5.22	10.37	2.89	2.99	2.85	4.73	
Positive management							NS
Less than CDA	3.74	6.89	1.71	2.91	1.29	2.53	
CDA	5.45	10.44	2.13	3.11	2.07	3.92	
More than CDA	5.76	10.05	2.07	3.17	1.92	3.25	

TABLE 19 (CONTINUED): RESPONSIVE INVOLVEMENT OF TEACHERS BY EDUCATIONAL LEVEL

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Negative management							NS
Less than CDA	1.13	3.95	.59	1.97	.49	2.30	
CDA	.46	1.26	.30	1.53	.36	1.14	
More than CDA	1.03	4.10	.51	1.57	.32	1.35	
Language play							NS
Less than CDA	2.47	5.84	1.53	3.50	1.60	4.06	
CDA	.80	2.28	2.67	5.48	2.52	5.72	
More than CDA	2.68	6.44	1.78	3.68	2.02	4.69	
Facilitate peer play							NS
Less than CDA	.43	1.67	.70	2.50	.33	1.02	
CDA	.20	.78	1.11	3.21	.45	1.27	
More than CDA	.28	1.02	.73	1.98	.66	1.34	

Responsive Involvement: proportion of time. Other categories: frequency of occurrence over observation period.

**p≤.05; NS=Not Significant*

Source: Families and Work Institute (1998)

ADHERENCE TO THE CDA REQUIREMENT

Question: *Since more education is related to better quality, why have the gains in 1996 been less than expected?*

Finding 8: One possible explanation is that while child care staff are significantly better educated in 1996 than they were in 1992, only 44 percent of centers met the immediately forthcoming requirement that there be one CDA equivalent trained staff for every 20 children, effective just after data were collected for this study.

As of July 1995 (and later extended to July 1996), child care centers were required to have one CDA, CDA Equivalent or higher trained staff for every 20 enrolled children. Table 20 summarizes center adherence to CDA regulations based on director reports of all staff in the center. Only 44 percent of the centers met this immediately forthcoming requirement.* Centers did increase the proportion of staff meeting these new regulations over time. In 1992, less than one-third of the staff met the requirement; in 1994, just over one-third of the staff did so; and by 1996, over half of the staff met this forthcoming requirement. Inspection of the proportion of the staff in each background category over time shows that while there were overall changes in the educational backgrounds of staff, the significant changes were a decrease in high school and minimal training, a decrease in staff with some college and some Early Childhood Education (ECE), and an increase in staff with a CDA. The proportion of CDA trained staff quadrupled from 1992 to 1994 and then doubled from 1994 to 1996. There were no changes in the proportion of staff with higher level backgrounds, either AA or BA degrees.

* Note: Our estimates do not cover teachers who have been grandfathered in because it was very difficult to obtain accurate and reliable data on this. Many directors were confused about whether or not staff qualified for this exemption. Given the high rates of turnover, however, the number of staff grandfathered in are not expected to raise adherence figures significantly.

TABLE 20: ADHERENCE TO CDA REGULATION CHANGE

	1992		1994		1996	
	Percent	SD	Percent	SD	Percent	SD
Percent of centers meeting requirement of one CDA (or higher) trained staff for every 20 children (director reports)	15%		33%		44%	
Proportion of staff meeting requirements (CDA, AA, or BA) (director reports)	26	27%	37	34%	53	32%
Proportion of center staff in each background category (director reports)						
high school and minimal ECE training	47	36	36	34	39	32
some college and some ECE training	13	22	8	17	4	10
CDA	3	9	12	22	28	29
AA in ECE	13	18	11	21	11	17
BA or more in ECE	10	20	14	20	14	22

Source: Families and Work Institute (1998)

Observed teachers' descriptions of their backgrounds are consistent with directors' descriptions as shown in Table 21. The percent of observed teachers with CDA or more advanced training doubled from 1992 to 1996. Inspection of the proportion of observed teachers in each background category suggests that the increase was in CDA trained staff rather than in staff with AA, BA, or more advanced degrees in early childhood education.

TABLE 21: ADHERENCE TO CDA REGULATION CHANGE: BACKGROUNDS OF INTERVIEWED TEACHERS

	1992	1994	1996
Proportion of interviewed teachers meeting requirements (teacher reports) (CDA, AA, or BA)	32%	56%	66%
Proportion of interviewed staff (teacher reports)			
no training	19	16	12
high school and minimal ECE training	27	13	15
some college and some ECE training	22	16	7
CDA			
National	8	15	13
Equivalent	NA	17	34
AA in ECE	7	7	4
BA or more in ECE	17	17	15

Source: Families and Work Institute (1998)

As part of the interview with the observed teachers, we asked whether they had completed a National or Equivalent CDA. Most of the CDA staff received Equivalent CDAs.

Question: Why do only slightly less than half of Florida's centers meet the forthcoming CDA requirement?

Finding 9: There are several plausible explanations including the fact that many directors feel the CDA makes child care expensive, is confusing and is not enforced. About half of teachers not pursuing the CDA are planning to leave the field. Although most say it is not because of the CDA requirement. Very high levels of turnover make compliance particularly difficult. Only two percent of the teachers were in the same classrooms—or even centers—four years later.

As shown in Table 22, directors find the CDA regulations expensive (62 percent), confusing (26 percent) and not enforced (23 percent).

TABLE 22: EVALUATION OF CDA REQUIREMENT BY DIRECTORS

	Percent agree
What obstacles do you encounter with the new regulations regarding the CDA?	
The new regulations are confusing	26%
The new regulations make care more expensive to provide	62
The new regulations are not enforced	23
I expect the new CDA regulation to be dropped	4

Source: Families and Work Institute (1998)

Among teachers with less than a CDA, 49 percent say that they are not working on this credential because they are planning to leave the field soon. Almost one-quarter (23 percent) of the observed staff without a CDA feel that CDA training is unaffordable, there is no training available (11 percent), or that they will wait until they are told to obtain this credential (10 percent). Waiting until being told to work on a CDA is problematic, however, given that almost one in four directors report that the new regulations are not enforced. Perhaps surprisingly, only three percent see not getting a salary increase as an obstacle. These findings are shown in Table 23.

TABLE 23: TEACHER REASONS FOR NOT WORKING ON A CDA

	Percent agree
Teachers with AA or BA degrees (n=83)	
I have an equivalent or higher degree already	72%
Teachers with less than a CDA (n=152)	
I don't have a high school degree or GED	6
Difficulties with transportation	2
I won't get a salary increase	3
I can't afford it	23
I don't like the available training	1
I don't see a reason for it	7
Information about the CDA and the equivalents is confusing	6
I expect this requirement to be dropped	1
I'll wait until someone tells me I have to	10
There is no training available	11
I plan to leave the field soon (n=75)	49
I am leaving because of the CDA requirement	9

Source: Families and Work Institute (1998)

Although most teachers did not appear to be leaving the field because of the CDA requirement, there were high turnover levels among teachers in the four years that we conducted this study, making compliance much more difficult.

Directors provided an annual turnover rate for total staff by reporting the total number of teaching staff that left during the past year. These rates are reported in Table 24. Turnover rates increased from 1992 to 1994 (from 24 percent to 30 percent) and remained at the same level from 1994 to 1996. These figures, though very high from a child development perspective, were within the range of turnover reported in other studies (Whitebook, Howes, and Phillips, 1990, 1994; *Cost, Quality, and Child Outcomes in Child Care Centers,* 1995). Thus, it appears that the regulatory change did not trigger unusually high levels of turnover.

TABLE 24: TURNOVER OF STAFF

	1992		1994		1996	
	M	SD	M	SD	M	SD
Director reports of total staff turnover	.24	.24	.30	.31	.30	.32

Source: Families and Work Institute (1998)

Over the four years that we conducted this study, 1,115 teachers were observed in their classrooms. As can be seen in Table 25, only 22—a shocking 2 percent—of these teachers were in the same classroom (or even in the same center) and thus were interviewed in all three data collection periods. Only 11 percent of the teachers were present for two data collection periods.

TABLE 25: TURNOVER OF OBSERVED TEACHERS

	Percent of total observed teachers (n=1115)
Present for three observation periods	2%
Present for two observation periods	11
1992 and 1994	5
1994 and 1996	6
Present for only one observation period	87
1992	30
1994	26
1996	31

Source: Families and Work Institute (1998)

Given the concern with the cost and other obstacles to obtaining the CDA requirement, we asked the 226 observed teachers who had completed CDA training in 1996 to evaluate this experience. Their evaluations are summarized in Table 26, with their full evaluation in Appendix A. Because there were differences between the evaluations of those who completed the National CDA and those who completed the CDA Equivalency, we have separated these answers.

Although cost was the major obstacle to beginning the CDA/CDA Equivalency, especially for those taking the National Credential (67 percent for the National versus 37 percent for the Equivalency), there were virtually no differences in the reported costs of these two credentials. Some teachers (18 percent of those working on the National CDA and 67 percent of those working on the Equivalency) received a nominal wage increase ($.62 an hour) for beginning to work on this credential; other teachers (55 percent of those working on the National CDA and 33 percent of those working on the Equivalency) received a wage increase ($1.08 an hour) for completing it.

Interestingly enough, teachers were more positive about the CDA than directors, and most teachers plan to continue their early childhood education.

TABLE 26: TEACHERS EVALUATION OF CDA EDUCATION

	Percent agree	
	National n=69	Equivalency n=157
What was the major obstacle to beginning CDA?		
Cost	37%	67%
Availability of training	5	33
Finding time	29	0
Transportation	2	0
High school equivalency requirement	2	0
Language barrier	0	0
Family and own child care responsibilities	15	0
Did you receive college credit for training?	46	80
Credits will be accepted if you continue your education	95	100
Do you plan to obtain a higher degree?		
I plan to	70	60
I am currently working on a higher degree	4	0

TABLE 26 (CONTINUED): TEACHERS EVALUATION OF CDA EDUCATION

	Percent agree	
	National	Equivalency
Do you plan to take more early childhood training?		
I plan to	81%	60%
I am currently taking training	9	0
For attending the CDA education did you receive		
Increased benefits?	2	0
A promotion?	0	0
A wage increase?	18	67
How much?	Average $.62 per hour	
How much did the total training program cost you?	$102.32	$99.55
How much did you spend additionally for books and materials?	$46.37	$49.86
Did you receive financial help in the form of		
A loan?	0%	0%
Pell grant?	2	33
Financial assistance from the workplace?	29	0
Scholarship?	17	0
Family?	2	0
For completing your CDA training did you receive		
Increased benefits?	2	0
A promotion?	5	0
A wage increase?	55	33
How much?	Average $1.08 per hour	
A bonus?	2%	0%

TABLE 26 (CONTINUED): TEACHERS EVALUATION OF CDA EDUCATION

	Percent agree	
	National	Equivalency
What was the biggest barrier to completing your CDA?		
Collecting resource files	10%	0%
Completing course requirements	8	50
Costs	23	50
Passing the assessment	3	0
Time required	39	0
Taking the exams	13	0
Access to training	3	0
How would you rate your CDA program?		
Excellent	48	83
Good	43	17
Fair	4	0
Poor	5	0
Did you make changes in your teaching as a result of the CDA program?	65	80

Source: Families and Work Institute (1998)

Given some of the differences in ratings for these two approaches, we compared teaching behaviors of teachers who had completed the National CDA with those of teachers who had not completed the CDA Equivalency.

As shown in Table 27, teachers in the National as opposed to the Equivalency CDA program were more responsively involved, made more positive initiations, demonstrated more positive responses, and engaged in more positive management. There were no differences in ratings of sensitivity, detachment, or harshness.

As we have found in other studies, teachers' ratings of their training experiences and their statements that these experiences have changed are not to be taken as indicative of actual quality improvement (Galinsky, Howes, and Kontos 1995). While teachers in the CDA Equivalency rated their centers more highly and reported more change than those in the National program, there actually seems to be somewhat greater improvement with the National credential.

TABLE 27: TEACHER RESPONSIVE INVOLVEMENT WITH NATIONAL AND EQUIVALENCY CDA TRAINING (N=487)

	National		Equivalency		t-test
	M	SD	M	SD	
Proportion of time near teacher responsive involvement	.53	.34	.47	.35	3.86* Nat'l>Equiv
Positive initiations	2.97	4.81	1.89	2.53	10.05** Nat'l>Equiv
Positive responses	3.09	6.31	1.74	2.55	5.66* Nat'l>Equiv
Positive management	2.25	4.13	1.41	2.42	4.78* Nat'l>Equiv
Negative management	.28	.83	.36	1.39	.64 (NS)
Language play	2.47	5.64	2.11	5.21	.39 (NS)
Facilitated peer interaction	.46	1.43	.42	1.60	.46 (NS)

Responsive Involvement: proportion of time. Other categories: frequency of occurrence over observation period.

**p≤.05; **p≤.01; NS=Not Significant*

Source: Families and Work Institute (1998)

CHANGES IN CENTER OPERATION

Question: What was the impact of the regulatory change on center enrollment?

Finding 10: After Florida's regulatory changes, centers did not serve fewer infants and toddlers, although they did serve fewer subsidized children.

Our final set of questions looks at the impact of the regulatory change on center operation. As seen above, there was very real concern about the impact of these changes on the cost and availability of child care.

In the legislative debate that took place about Florida's regulatory changes, it was felt that child care centers might have to cut back on the number of infants and toddlers served. Given that the ratios for infants changed from 1:6 to 1:4, the ratios for toddlers from 1:8 to 1:6 and that there were virtually no changes in the ratios for older children, it was assumed that the increased costs of serving younger children might lead to cutbacks in serving these children. Four years after passage, that does not seem to be the case.

On average, centers served fewer than 100 families. As shown in Table 28, the number of enrolled families and the total number of children served did not change with regulatory changes. There were also no differences in the distribution of children of different ages within the centers.

On the other hand, the proportion of subsidized families decreased over time from a high of 36 percent in 1992 to a low of 26 percent in 1996.

TABLE 28: ENROLLMENT

	1992		1994		1996	
	M	SD	M	SD	M	SD
Number of families	80.94	61	81.22	59.11	87.91	59.28
Proportion subsidized families	36%	42%	32%	44%	26%	42%
Number of children	92.84	62.63	96.66	77.26	100.96	66.94
infants	5.23	9.32	4.05	8.03	4.83	10.47
toddlers	19.17	20.64	20.34	27.09	19.18	17.89
preschoolers	50.32	43.56	57.42	51.26	58.07	45.56
school age	17.50	34.11	14.85	24.28	18.88	30.91

Source: Families and Work Institute (1998)

Question: What was the impact of the regulatory change on child care fees?

Finding 11: Child care fees increased slightly over two years for preschool and school-age children, but not for infants and toddlers. The salaries of teachers have also increased over a four year period by slightly more than one dollar an hour.

If no fewer infants and toddlers are served in child care centers, have the fees charged to parents for serving younger children been raised to compensate for the improved ratios and increased education required?

While our data show that fees have been increased in actual dollars, these changes were not statistically significant for infants and toddlers. Overall, 59 percent of the directors reported that they changed their fees between 1992 and 1994, and 62 percent of the directors between 1994 and 1996, as presented in Table 29. Over this two year period, fees were raised for preschool children by a little more than $12 a week and for school-age children by about $5.50 a week, but not for infants or toddlers. Note: These questions were not asked in 1992 so there were no data for that year.

TABLE 29: WEEKLY FEES CHARGED

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
Full-time children							
Infants	na		$65.45	$35.28	$72.24	$43.22	NS
Toddlers	na		$70.42	$24.79	$81.97	$27.95	NS
Preschoolers	na		$67.14	$16.21	$79.21	$44.45	32.10***
School-age	na		$48.26	$27.33	$53.80	$63.54	5.11*
Percent of centers			Percent			Percent	
increased fees	na		59%			62%	

**p≤.05; ***p≤.001; NS=Not Significant*

Source: Families and Work Institute (1998)

The wages of observed teachers are presented in Table 30. Wages increased over time, with an actual increase between 1992 and 1996 of slightly more than one dollar per hour. Although salaries were low to begin with, this amounts to a 20 percent increase, nearly double the 11 percent increase in cost of living over the same period. Likewise 55 percent of teachers receiving the National CDA and 33 percent of teachers receiving the CDA Equivalency reported receiving a raise, averaging $1.08 (see Table 26 for further information on teachers' experiences with the CDA/CDA Equivalency).

TABLE 30: SALARY OF OBSERVED TEACHERS

	1992		1994		1996		F-Test (Scheffe)
	M	SD	M	SD	M	SD	
$ per hour	$5.76	$1.84	$6.18	$1.70	$6.93	$2.48	32.85***

****p≤.001*

Source: Families and Work Institute (1998)

Question: What was the impact of regulatory change on center staffing?

Finding 12: Centers hired more staff to meet ratio requirements, then held this number steady. Likewise, turnover initially increased and then remained constant between 1994 and 1996.

The changes in adult:child ratio regulations required more adults to be in the classroom. Descriptive statistics for staffing patterns are in Table 31. The number of classrooms in centers remained the same but the number of teaching staff increased between 1992 and 1994, then held steady between 1994 and 1996. This suggests that once centers increased staff to meet the lower adult: child ratios, they maintained these levels; although, as noted above, in 1996, 14 percent of classrooms were out of compliance with the ratio requirements.

TABLE 31: STAFFING PATTERNS

	1992		1994		1996	
	M	SD	M	SD	M	SD
Number of classrooms	5.69	3.11	5.88	3.10	6.04	3.15
Total staff	7.03	9.38	12.27	8.34	12.38	8.18

Source: Families and Work Institute (1998)

Question: Given variable rates of compliance, which centers were the most likely to comply with the new regulations?

Finding 13: Non-profit centers were more likely to be in compliance with the new regulations than for-profit centers. In addition, centers that complied with professional ratios and adhered to CDA requirements in 1996 paid higher salaries.

There was no association in 1996 between classrooms and adherence to the CDA and compliance with the ratio regulations—that is, different classrooms were likely to meet one but not the other regulation. Therefore we conducted separate analyses for each regulation.

Center characteristics (auspices, location, and population served) did not change over time so we simply examined associations between these characteristics and compliance in 1996. For other center operations (enrollment, fees, salaries, staffing patterns and turnover), we were interested in both differences in centers complying in 1996 and in changes over time.

Auspices and adherence

In 1996, non-profit centers were more likely than for-profit centers to meet the forthcoming CDA and the effective ratio regulations. As shown in Table 32, only one-third of for-profit centers adhered to the CDA regulations and less than one-quarter of for-profit centers were in compliance with the ratio regulations. There were no differences in adherence to either the CDA or the ratio regulation for centers that differed on the other center characteristics we assessed.

TABLE 32: AUSPICES AND ADHERENCE TO NEW REGULATIONS (1996)

	Adherence			
	No		Yes	Chi square
Percent of centers				
Adherence to CDA (one CDA or more advanced for every 20 children)				
Non-profit	47%		53%	5.76*
For-profit	67		33	
	Out of compliance	Florida compliance	Professional compliance	Chi square
Compliance with ratio regulations				
Non-profit	10%	46%	44%	8.98**
For-profit	20	59	21	

** p≤.05; ** p≤.01*

Source: Families and Work Institute (1998)

Enrollment and adherence

There were no differences between centers in and out of adherence to either the CDA or the ratio regulation or in changes over time in such compliance in terms of the number of enrolled families, the number of enrolled children or the enrollment of children in different age groups. The proportion of subsidized families did change over time in centers meeting and not meeting in 1996 with the CDA regulation as shown in Table 33 below. Centers that meet the CDA regulations in 1996 had a larger proportion of subsidized families in 1992 than centers that did not meet the CDA regulation. By 1996, centers that did and did not meet the CDA regulations had similar proportions of subsidized families. There were also no differences in the proportion of subsidized families or in changes in proportion of subsidized families for centers in or out of compliance with ratio regulations in 1996, as shown in Table 34.

Fees and adherence

There were no differences in centers that did and did not meet the new regulations nor were there differences in interactions between adherence and change over time in the weekly fees charged for centers.

Salaries and adherence

Centers that adhered to the new CDA regulations in 1996 paid higher salaries to their staff in 1996 but not in 1994 or in 1992, as shown in Table 33.

TABLE 33: ADHERENCE TO CDA REGULATIONS (1996) AND CHANGES OVER TIME IN CENTER OPERATION

	1992		1994		1996		F-Test (Scheffe)	
	M	SD	M	SD	M	SD	Adheres	Adheres by Time 3
Proportion of subsidized families								
Adheres	41%	43%	28%	38%	28%	38%	.02	4.09**
No	32	41	36	47	25	34		
Staff salaries								
Adheres	$6.23	$2.15	$6.31	$1.76	$8.02	$3.14	20.57**	13.29**
No	$5.40	$1.45	$6.03	$1.64	$6.17	$1.48		

***p≤.01*

Source: Families and Work Institute (1998)

Centers that complied with the new ratio regulations in 1996 paid higher salaries to their staff in 1994 and in 1996 if they complied with professional as opposed to Florida ratio standards. These findings for ratios are presented in Table 34.

TABLE 34: COMPLIANCE WITH RATIO REGULATIONS (1996) AND CHANGES OVER TIME IN CENTER OPERATION

	1992		1994		1996		F-Test (Scheffe)	
	M	SD	M	SD	M	SD	Complies	Complies by Time 3
Staff salaries								
Out of compliance	5.33	1.28	6.08	1.40	6.13	3.74	5.48**	3.20**
Florida compliance	5.64	1.43	6.03	1.54	6.41	1.51		
Prof compliance	6.19	2.44	6.42	2.02	7.67	2.82		

***p≤.01*

Source: Families and Work Institute (1998)

Staffing patterns

There were no differences in centers that did and did not meet the new regulations nor were the differences in interactions between adherence and change over time in staffing patterns.

Turnover

There were no differences in centers that did and did not meet or changes in these centers over time in director reported turnover or in turnover of observed teachers.

Conclusion

In an era when so many very young children experience care beyond their families, there is much concern about how such arrangements will affect their development. This concern has increased, given the new knowledge of how pivotal the early years are to the brain development of young children. *The Florida Child Care Quality Improvement Study* offers an opportunity to investigate the impact of regulatory change on the quality of the day to day experiences of young children in child care as well as on children's growth and development in general.

Results reveal that regulatory changes such as these have the powerful capacity to improve children's outcomes as well as the quality of the early education and care. We found that increased teacher education and ratios significantly contribute to positive gains in children's development and the quality of early education and care they receive without having a major impact on the child care marketplace or consumer costs. Furthermore, this study also reveals that the more stringent the improvement in staff-to-child ratios and in the educational level required of teachers, the greater the impact on children's development and on the quality of their educational environment. In other words, the changes passed in Florida were good, but meeting professional ratios and having teachers with higher educational backgrounds are better.

The findings of this study reveal that it is not enough to pass laws. Directors and teachers must support such laws. Thus, regulatory change should include efforts to ensure a cultural change that supports such improvements as well as practical efforts to make sure these improvements are fiscally supported and ultimately enforced.

References

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

Behar, L. & Stringfeld, S. (1975). A behavior rating scale for the preschool child. *Developmental Psychology, 10,* 5, pp. 601-610.

Bond, J. T. (1997). *Evaluation of Full Start, a Headstart-community child care collaboration.* Kansas City, MO: Ewing Marion Kauffman Foundation.

Bond, L., Kelly, L., Teti, D. & Gibbs, E. (1983). *Longitudinal analysis of infant free play with familiar and unfamiliar toys*. Paper presented at the biennial meeting of the Society for Research in Child Development.

The Center for Career Development in Early Care and Education (1997). Unpublished data.

Cost, Quality & Child Outcomes Study Team (1995). *Cost, quality, and child outcomes in child care centers.* Denver, CO: Economics Department, University of Colorado at Denver.

Families and Work Institute (1996). Unpublished report.

Feagans, L. & Farran, D. (1979). *Adaptive language inventory.* Unpublished manuscript. Chapel Hill, NC: University of North Carolina at Chapel Hill.

Feagans, L.V., Fendt, K., & Farran, D. (1991). *The effect of day care intervention on teacher ratings of the elementary school discourse skills in disadvantaged children.* Paper presented at the biennial meeting of the Society for Research in Child Development, Seattle, WA.

Florida Children's Forum (1995). Unpublished data.

Galinsky, E., Howes, C., Kontos, S., & Shinn, M. (1994). *The study of children in family child care and relative care: Highlights of findings.* New York, NY: Families and Work Institute.

Galinsky, E., Howes, C., & Kontos, S. (1995). *The family child care training study*. New York, NY: Families and Work Institute.

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

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

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. & Matheson C.C. (1992). Sequences in the development of competent play with peers: Social and social preferential play. *Developmental Psychology, 28,* pp. 961-974.

Howes, C., Smith, E., & Galinsky, E. (1995). *The Florida child care quality improvement study: Interim report*. New York, NY: Families and Work Institute.

Kontos, S., Howes, C., Shinn, M., & Galinsky, E. (1994). *Quality in family child care and relative care.* New York, NY: Teachers College Press.

Rubenstein, J. , & Howes, C. (1979). Caregiving and infant behavior in day care and homes. *Developmental Psychology*, 15, 1-24.

Shinn, M., Gulcur, L., & Clements, M. (1997). Unpublished data.

Shore, R. (1997). *Rethinking the brain. New insights into early development*. New York, NY: Families and Work Institute.

Sibley, A., Abbott-Shim, M., & Galinsky, E. (1994). *Child care licensing: Georgia impact study*. Atlanta, GA: Quality Assist, Inc.

Sibley, A. & Abbott-Shim, M. (1996). Unpublished data.

Waters, E. (1990). The attachment Q-Set. Unpublished manuscript. State University of New York Stony Brook.

Waters, E., & Deane, K.E. (1985). Defining and assessing individual differences in attachment relationships: Q-methodology and the organization of behavior in infancy and early childhood. In I. Bretherton & E. Waters (Eds.), Growing points of attachment theory and research*, Monographs of the Society for Research in Child Development, 50,* (1-2, Serial No. 209), pp. 41-65.

Whitebook, M., Howes, C., & Phillips, D.A. (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.

Appendix A

TABLE A: TEACHERS' EVALUATION OF CDA TRAINING

	Percent agree	
	National	Equivalent
	n=69	n=157
What was the major obstacle to beginning training?		
Cost	37%	67%
Availability of training	5	33
Finding time	29	0
Transportation	2	0
High school equivalency requirement	2	0
Language barrier	0	0
Family and own child care responsibilities	15	0
How many class hours were required?	310 hours (SD=200.81)	297 hours (SD=662.51)
How frequently did your class meet?		
Every week	82%	100%
Every other week	9	
Once a month	9	
How many hours did your class meet per session?	3.81 hours (SD=1.41)	3.57 hours (SD=1.59)
What areas of study did you cover?		
Planning a safe, healthy learning environment	85%	100%
Steps to advance children's physical and intellectual development	85	100
Positive ways to support children's social and emotional development	94	100
Strategies to establish productive relationship with families	85	100
Strategies to manage an effective center operation	73	83
Maintaining a commitment to professionalism	88	100
Observing and recording children's behavior	88	100
Principles of child growth and development	85	100

TABLE A (CONTINUED): TEACHERS' EVALUATION OF CDA TRAINING

	Percent agree	
	National	Equivalent
Which area of study was most helpful?		
Planning a safe, healthy learning environment	15%	0%
Steps to advance children's physical and intellectual development	21	20
Positive ways to support children's social and emotional development	27	40
Strategies to establish productive relationship with families	5	0
Maintaining a commitment to professionalism	12	0
Observing and recording children's behavior	12	20
Principles of child growth and development	7	5
Did you conduct direct observations of children?	66	67
Did you have		
one regular instructor?	29	33
one regular instructor plus speakers?	27	67
different instructors?	38	33
Was the training		
mostly lectures?	0	0
lectures with class discussion?	13	0
lectures, class discussion, and small group activities?	87	100
Were audio-visuals used?	90	80
Did you evaluate and provide feedback about the training?	94	83
Have you made contact with other students that you call or see outside of training?	63	60
Did you receive college credit for training?	46	80
Credits will be accepted if you continue your education	95	100
Do you plan to obtain a higher degree?		
I plan to	70	60
I am currently working on a higher degree	4	0

TABLE A (CONTINUED): TEACHERS' EVALUATION OF CDA TRAINING

	Percent agree	
	National	Equivalent
Do you plan to take more early childhood training?		
I plan to	81%	60%
I am currently taking training	9	0
Was your work with children		
In a lab program?	4	0
At your job?	96	80
Field based, as a volunteer?	0	0
Did you visit other child care centers?	20	50
Did you have an on-site person who worked with you regularly?	56	83
Were you observed working with children?	44	83
Did you receive feedback from this person?	86	80
Did you prepare a professional resource file or portfolio?	77	100
What was the most important part of the CDA experience?		
Coursework?	36	17
Readings?	7	0
Being observed and receiving feedback?	12	50
Working with on-site mentor?	5	0
Meeting my classmates?	14	0
Preparing professional resource files?	26	33
For attending the CDA training did you receive		
Increased benefits?	2	0
A promotion?	0	0
A wage increase?	18	67
How much?	Average 62 cents per hour	

TABLE A (CONTINUED): TEACHERS' EVALUATION OF CDA TRAINING

	Percent agree	
	National	Equivalent
How much did the total training program cost you?	$102.32	$99.55
How much additional did you spend for books and materials?	$46.37	$49.86
Did you receive financial help in the form of		
A loan?	0%	0%
Pell grant?	2	33
Financial assistance from my workplace?	29	0
Scholarship?	17	0
Family?	2	0
If you have a National CDA who participated in the final assessment		
Parent?	10	
Advisor ?	33	
CDA representative?	55	
For completing your CDA training did you receive?		
Increased benefits?	2	0
A promotion?	5	0
A wage increase?	55	33
How much?	average $ per hour $1.08	
A bonus?	2%	0%
What was the biggest barrier to completing your CDA?		
Collecting resource files	10	0
Completing course requirements	8	50
Costs	23	50
Passing the assessment	3	0
Time required	39	0
Taking the exams	13	0
Access to training	3	0

TABLE A (CONTINUED): TEACHERS' EVALUATION OF CDA TRAINING

	Percent agree	
	National	Equivalent
How would you rate your CDA program?		
Excellent	48%	83%
Good	43	17
Fair	4	0
Poor	5	0
Did you make changes in your teaching as a result of the CDA program?	65	80

Source: Families and Work Institute (1998)

Appendix B: Measures

TABLE B1: MEASURES USED IN INTERVIEWING DIRECTORS

Type of Measure	Source	Description	Alpha/ Interobserver Reliability
Interview with director		Interview includes questions about enrollment, fees, staff qualifications, and CDA Credential or CDA Equivalency Requirement activities	

Source: Families and Work Institute (1995, 1998)

TABLE B2: MEASURES USED IN INTERVIEWING TEACHERS AND OBSERVING CLASSROOMS

Type of Measure	Source	Description	Alpha/ Interobserver Reliability
Process quality ratings			
Arnett Scale of Teacher Sensitivity	Arnett, 1989	Assessment of three aspects of provider-child relationship: sensitivity, restrictiveness, and detachment (26 items).	κ=.93 Sensitivity α=.91 Harshness α=.83 Detachment α=.81
Process quality observation			
Howes Involvement Scale	Howes and Stewart, 1987	Three levels of responsive teacher involvement: (1) simple responses to overtures; (2) elaborated exchanges; and (3) intense, reciprocal play. There are two levels of nonresponsive, directive involvement: (1) directive such as giving the children orders without regard for their social bids, and (2) ignoring and nonresponsive behavior. Can be summed to percent responsive involvement.	κ=.93
Teacher behaviors		(1) *Initiates positive* refers to the number of intervals in which the teacher smiled, vocalized, or touched the child; (2) *responds positive* indicates the number of intervals in which the teacher responds in a positive manner to a social bid from a child; (3) *negative discipline* refers to the number of intervals in which the teacher handles the child's problems or misbehavior in a negative way such as yelling, scolding, smacking, pinching etc.; (4) *facilitating peer interaction* indicates whether the teacher has tried to encourage cooperative play among children; and (5) *encouraging language play* includes playing rhyming games, and reading to or talking with children.	κ=.81 to κ=.91

Source: Families and Work Institute (1995, 1998)

TABLE B2 (CONTINUED): MEASURES USED IN INTERVIEWING TEACHERS AND OBSERVING CLASSROOMS

Type of Measure	Source	Description	Alpha/ Interobserver Reliability
Structural quality			
Group size		Observed number of children present at 15-minute intervals across observation period	κ=.92
Ratio		Observed number of children for each adult present who is providing care	κ=.91
Formal education of teacher		Level of schooling completed	
CDA Credential or CDA Equivalency Requirement		Participation in and evaluation of CDA Credential or CDA Equivalency Requirement training	
Training		Conferences and workshops attended	
Years of experience		Years of teaching experience	
Global quality			
Early Childhood environment Rating Scale (ECERS)	Harms and Clifford, 1980	Observational measure focusing on the six areas of caregiving practice: space, furnishings, basic needs, language and reasoning, learning activities, social development, and adult needs (33 items)	κ=.93
Infant Toddler Environment Rating Scale (ITERS)	Harms and Clifford, 1980	Observational measure focusing on the six areas of caregiving practice: space, furnishings, basic needs, language and reasoning, learning activities, social development, and adult needs (33 items)	κ=.94

Source: Families and Work Institute (1995,1998)

TABLE B3: MEASURES USED IN OBSERVING CHILDREN AND OBTAINING TEACHERS' ASSESSMENTS OF CHILDREN

Type of Measure	Source	Description	Alpha/ Interobserver Reliability
Attachment Security	Waters and Deane, 1985	Q-set based on 2 to 3 hour observation; differentiates between a secure, an anxious/avoidant, and an anxious/resistant attachment to provider (90 items)	κ=.85
Revised Howes Peer Play Scale	Howes and Matheson, 1992	Observation of four 5-minute time samples over 2 to 3 hours measures aimless wandering, onlooker behavior, and the complexity of play with peers (6 scale points)	κ=.87
Howes Object Play Scale	Rubenstein and Howes, 1979	Complexity of cognitive play from (1) oral contact and passive holding to (3) active manipulation to (5) exploiting the unique property of the object for creative or unusual uses	κ=.86
Adaptive Language Inventory	Feagans and Farran, 1979	18-item rating scale by teachers assessing children's functional communication skills	α=.94
Preschool Behavior Questionnaire	Behar and Stringfield, 1975	30-item rating scale by teachers assessing children's aggression, anxiety, and hyperactivity	α=.86
Play experiences		Observational scheme for coding 11 predominant activities for children	κ=.87 to .93

Source: Families and Work Institute (1995, 1998)