

# Evaluation of Pennsylvania's Keystone STARS Quality Rating System in Child Care Settings



University of Pittsburgh Office of Child Development  
Pennsylvania State University Prevention Research Center

December 2006

# Evaluation of Pennsylvania's Keystone STARS Quality Rating System in Child Care Settings

December 2006

## Table of Contents

<b>Executive Summary .....</b>	<b>1</b>
<b>Introduction .....</b>	<b>3</b>
Purpose of the Evaluation	
History of Quality Studies in Pennsylvania	
<b>Methodology.....</b>	<b>4</b>
Instruments	
Sample	
Procedures	
<b>Findings .....</b>	<b>7</b>
Major Findings	
Environmental Scales	
Centers – ECERS scales	
Family Child Care Homes – FDCRS scales	
Use of a Curriculum	
Education and Experience	
<b>Comparison of Scores to Previous Quality Studies.....</b>	<b>22</b>
<b>Conclusions &amp; Recommendations .....</b>	<b>26</b>
Limitations	

### **Acknowledgements:**

Written by:

Wendy Barnard, Ph.D. – University of Pittsburgh Office of Child Development

Wendy Etheridge Smith, Ph.D. – Commonwealth of Pennsylvania Department of Public Welfare,  
Office of Child Development

Richard Fiene, Ph.D. – The Pennsylvania State University Prevention Research Center

Kelly Swanson – Pennsylvania Key

The Pennsylvania Department of Public Welfare Office of Child Development collected data for this evaluation based on assessments made by ERS evaluators at the Pennsylvania Key and independent consultants.

The University of Pittsburgh Office of Child Development and the Pennsylvania State University Prevention Research Center completed data analyses.

# Evaluation of Pennsylvania's Keystone STARS Quality Rating System in Child Care Settings December 2006

## Executive Summary

Child care in Pennsylvania serves more than 300,000 children, and is the largest program helping to prepare Pennsylvania's young children for school. Recognizing the importance of quality early learning to a child's future success in school and in life, Pennsylvania commissioned a study in 2002 to evaluate the quality of early care and education in Pennsylvania and create a baseline for upcoming quality improvement initiatives. Results showed that there was a steady decline in quality in early care settings since the mid-1990's and that the quality in most child care settings was adequate at best. Also in 2002, Pennsylvania began a pilot of the Keystone STARS Quality Rating System to rate the quality of early care programs and to provide child care programs with targeted financial assistance, professional development, and other supports in order to improve quality. The primary purpose of this study is to determine if the Keystone STARS program is improving quality in participating child care programs and to determine if Keystone STARS is reversing the decline of quality in child care in Pennsylvania that was so evident in the late 1990's.

Data were collected from 356 child care centers, 81 group child day care homes, and 135 family child day care homes, for a total of 572 sites. Programs were assessed using the Early Childhood Environment Rating Scale – Revised (ECERS-R) for center-based programs or the Family Day Care Rating Scale (FDCRS) for home-based programs. The scales score a variety of items on a 1-7 rating with: 1 = inadequate, 3 = minimal, 5 = good, and 7 = excellent. These instruments are widely used in the early childhood field to determine the quality of early learning programs for research and program improvement ([www.fpg.unc.edu/~ecers/](http://www.fpg.unc.edu/~ecers/)).

**Results clearly indicate that Keystone STARS helps child care programs improve their overall quality. Further, Keystone STARS is reversing the negative trend in child care quality that was evident in the late 1990's.** Today, child care programs are operating at a much higher quality level because of the Keystone STARS program. Results also reinforced the findings of the 2002 study that use of a defined curriculum and teachers with college degrees positively affect quality in early care and education programs.

### **Major Findings:**

- **There is sufficient evidence to support the Keystone STARS Quality Rating System as a reliable indicator of quality.** Both centers and home-based child care practitioners with higher STAR ratings had consistently higher scores on the Environmental Rating Scales (ERS). Progression through the STARS system appears to be a reliable predictor of attaining higher quality at the sites.
- **Child care quality is improving.** Between 1996 (4.50) and 2002 (3.90), the average ERS scores dropped significantly, indicating a declining trend in quality. The average ERS scores for child care centers assessed in 2006 for sites not participating in STARS (3.94) indicate that the trend of declining quality in child care has been reversed.

- **Keystone STARS continues to improve quality in child care centers.** Child care centers participating in Keystone STARS in 2006 have higher quality than the Pennsylvania average for child care centers and are showing higher quality now than at the inception of the STARS program. Overall ERS scores range from 4.11 for child care centers at Start with STARS to 5.42 for STAR 4 programs.
- Child care centers at the STAR 3 and STAR 4 levels have significantly higher Overall ECERS scores than centers not enrolled in the Keystone STARS system or at the Start with STARS level.
- Child care centers at the STAR 4 level have consistently higher scores on all subscales of the ECERS than all other child care centers.
- **Programs with a defined curriculum have higher quality.** Child care centers with a defined curriculum scored significantly higher on the Overall ECERS score. Family child care practitioners with a defined curriculum also scored significantly higher on the Overall FDCRS score.
- **Teachers with college degrees provide higher quality early education and care.** Both child care centers and family child care homes, regardless of STAR level, had significantly higher scores on the ERS when the teacher had at least an Associate's Degree.
- Teachers with at least five years of experience had significantly higher ERS scores than those with less experience.
- Family child care practitioners with more than 20 years experience had higher scores on the FDCRS in all areas except Basic Care.
- Family child care practitioners who met at least minimum professional development requirements had significantly higher Overall FDCRS scores.

Keystone STARS is increasing access to quality early learning experiences for young children in the Commonwealth. Findings from this evaluation suggest that the quality improvements in part may be attributed to Keystone STARS' emphasis on staff education; staff participation in ongoing professional development; and use of a curriculum in addition to the program's general focus on helping practitioners support children's early learning and development. Keystone STARS is keeping Pennsylvania's Promise for Children by helping Pennsylvania's families and communities provide for, protect, nurture, and teach our young children.

## **Introduction**

### **Purpose of the Study**

Decades of research clearly demonstrate that high-quality early care and education can help prepare children for success in school, work, and life (Schweinhart, 2004). Yet, previous research examining Pennsylvania's early care and education programs has shown that quality has decreased substantially since the mid-1990's and that 80% of the early care and education programs scored as having only minimal or adequate quality (Fiene, Greenberg, Bergsten, Fegley, Carl, & Gibbons, 2002). Fortunately, Pennsylvania has begun implementing systematic efforts to increase the availability of and access to quality early learning experiences for young children throughout the Commonwealth through the Keystone STARS program.

Pennsylvania designed the Keystone STARS Quality Rating System to support early care and education programs to achieve higher quality learning environments, thus helping young children achieve school readiness. Begun as a pilot program in 2002, Keystone STARS now is fully implemented as a continuous quality improvement initiative for early care and education programs such as child care and Head Start. Programs may enter Keystone STARS at the Start with STARS level and earn a STAR 1 through STAR 4 rating based on research-based standards for staff education and professional development, early learning environment, and business management. Child care programs that are accredited by designated national accrediting organizations can also receive a STAR 4 rating (often referred to as STAR 4 accredited programs). All child care programs participating in Keystone STARS can receive technical assistance and access to professional development opportunities; child care programs whose enrollment includes at least 5% of children receiving child care subsidy assistance receive targeted financial assistance. As of September 2006, nearly 4,300 child care programs are enrolled in Keystone STARS.

The primary purpose of this study is to determine if the Keystone STARS program is improving quality in participating child care programs. Further, the study will seek to determine if Keystone STARS is reversing the decline of quality in child care in Pennsylvania that was so evident in the late 1990's.

### **History of Quality Studies in PA**

Historically, Pennsylvania invested in assessing the overall quality of early care and education programs to inform program development and policies. Research and evaluation studies of overall quality in Pennsylvania child care programs were completed in 2004 (Barnard & Farber, 2004), 2002 (Fiene, Greenberg, Bergsten, Fegley, Carl, & Gibbons, 2002), 1996 (Fiene, Iutcovich, Johnson, & Koppel, 1998; Iutcovich, Fiene, Johnson, Koppel, & Langan, 2001), 1990 (Melnick & Fiene, 1990), 1984 (Kontos & Fiene, 1986, 1987), and 1978 (Fiene & Aronson, 1979).

Prior to the current study, the 2002 Pennsylvania Early Childhood Quality Settings Study had been the most comprehensive study completed in Pennsylvania with approximately 400 sites assessed. It established a statewide baseline of quality in early care and education programs from

which future quality initiatives could be measured to determine the relative effectiveness of these initiatives. Thus, a brief review of the 2002 Pennsylvania Early Childhood Quality Settings Study is provided to put the 2006 evaluation findings into perspective.

The 2002 Pennsylvania Early Childhood Quality Settings Study, commissioned by then Governor Schweiker as part of his Task Force on Early Childhood Care and Education, demonstrated that the overall quality of child care had decreased significantly compared to previous results from studies completed in the 1980's and 1990's. Significant decreases were noted in both child care centers and family child care homes. In both cases, quality scores (ERS—Environmental Rating Scales) as measured by the Early Childhood Environment Rating Scale (ECERS-R)(Harms, Clifford, & Cryer, 1998) and the Family Day Care Rating Scale (FDCRS)(Harms and Clifford, 1989) dropped from a 4.50 level to just below 4.00. This indicated that the level of quality in most child care sites decreased from adequate quality to only minimal quality. The 2002 study also noted that corresponding to this drop in quality was a decrease in the overall qualifications of staff during 1996-2000. Pennsylvania had to act to reverse the negative trend in access to and availability of quality early learning settings. The answer was the Keystone STARS Quality Rating System and continuous quality improvement initiative.

## Methodology

### Instruments

This study uses the Early Childhood Environment Rating Scale Revised (ECERS-R) and the Family Day Care Rating Scale (FDCRS).

The scales are designed to assess process quality in an early childhood group. Process quality consists of the various interactions that go on in a classroom between staff and children; staff, parents, and other adults; among the children themselves; and the interactions children have with the many materials and activities in the environment; as well as those features, such as space, schedule, and materials that support these interactions. Process quality is assessed primarily through observation and has been found to be more predictive of child outcomes than structural indicators such as staff to child ratio, group size, cost of care, and even type of care (Whitebook, Howes & Phillips, 1995). The scales are suitable for use in evaluating inclusive and culturally diverse programs.

**The Early Childhood Environment Rating Scale, Revised (ECERS-R)** is a measure of program quality and consists of 43 items organized into 7 subscales: (1) Space and Furnishings, (2) Personal Care Routines, (3) Language Reasoning, (4) Activities, (5) Interactions, (6) Program Structure, and (7) Parents and Staff. The descriptors cover the needs of children ages 2 ½ to 5 years of age. The instrument has been widely used in the early childhood field for more than 17 years to determine the quality of early learning programs for research and program improvement.

The 43 items in the ECERS-R are each scored 1-7 with: 1 = inadequate, 3 = minimal, 5 = good, and 7 = excellent. Scores of even numbers (i.e., 2, 4, or 6) are given if a center meets all of the criteria for the lower odd score and over half of the criteria for the next higher odd score (e.g., all

criteria for a 3 and over half the criteria for a 5 would be scored as a 4). The instrument is designed to produce a normal distribution of scores (Harms, Clifford & Cryer, 1998). Additionally, the ECERS-R is designed such that the individual requirements of each subscale are less valuable than the average total score. In fact, the scales are weighted, through repetition, on key items to ensure that the total score reflects those aspects of the child care environment and interactions that most support positive development.

**The Family Day Care Rating Scale (FDCRS)** also is a measure of program quality that is designed to assess the overall quality of family child care programs. The scale consists of 40 items, including three (3) items with separate criteria for infant/toddlers vs. preschool age children and eight (8) supplementary items for programs serving children with disabilities. The descriptors cover the needs of a range of ages from infancy through kindergarten. The items are organized into 7 subscales: (1) Space and Furnishings for Care and Learning, (2) Basic Care, (3) Language and Reasoning, (4) Learning Activities, (5) Social Development, (6) Adult Needs, (7) Provisions for Exceptional Children. This instrument also has been widely used in the early childhood field.

The two scales cover comparable aspects of care with often similar subscales and numbers of items, so results on ECERS-R and FDCRS can be directly compared. Thus, average scores are used for analysis rather than raw scores so that comparisons can be made between the ECERS-R and FDCRS scores.

### **Sample**

Three hundred fifty six (356) child care centers, 81 group child day care homes, and 135 family child care homes were included in the study (total = 572 sites). Sites were selected using two methods.

1. **Random Selection** - For child care centers, sites that were not participating in STARS, Start with STARS, STAR 1, STAR 2, and STAR 4 accredited sites were randomly selected for the sample. For group and family homes, sites that were not participating in STARS, Start with STARS, STAR 1, and STAR 4 accredited sites were randomly selected for the sample. Data were collected from March through September 2006.
2. **ERS Validation Visits** – When a child care program applies for a higher STAR rating, they request an ERS Validation Visit. As part of the STAR Designation process, they receive an ERS assessment. For child care centers, all sites that had a STAR 3 or 4 ERS Validation Visit by Environment Rating Scale (ERS) staff from the Pennsylvania Key between 7/1/05 and 8/31/06 were included in the sample. For family child care homes, all sites that had a STAR 2, 3, or 4 ERS Validation Visit by ERS staff between 7/1/05 and 8/31/06 were included in the sample. Occasionally, child care centers and family child care homes at STAR levels primarily assessed by ERS staff were randomly selected to complete sample requirements.

Extra visits were not conducted with a random sample of STAR 3 and STAR 4 centers and STAR 2, 3, and 4 homes because they already had ERS assessments as part of the STAR Designation process. Thus, it was deemed that an additional ERS assessment would be overly

intrusive to practitioners. All data collectors hired for this evaluation were trained to reliability with the ERS staff. This ensured that the scores would be consistent whether the visits were done by ERS staff or by independent consultants hired for this evaluation.

Child care centers were assessed using the Early Childhood Environment Rating Scale – Revised Edition (ECERS-R) either by PA-Key staff or by independent consultants. Additionally, nine (9) group homes were assessed using the ECERS-R because they were in center-like environments. Including the group homes that received the ECERS-R, there were 65 not in the STARS system, 37 in Start with STARS, 59 STAR 1 sites, 58 STAR 2 sites, 97 STAR 3 centers, nine (9) STAR 4 centers (these centers achieved STAR 4 status after completing all of the STARS requirements), and 40 STAR 4 accredited centers.

Family child care homes were given the Family Day Care Rating Scale (FDCRS) either by ERS assessors at the Pennsylvania Key or by independent consultants. Additionally, 72 group homes were assessed using the FDCRS because they were in home environments. There were 55 homes not in the STARS system, 32 homes in Start with STARS, 45 STAR 1 homes, 48 STAR 2 homes, 4 STAR 3 homes, two (2) STAR 4 homes (these homes achieved STAR 4 status after completing all of the STARS requirements), and 21 STAR 4 accredited homes.

## **Procedures**

Sites that participated via random selection were called by scheduling staff to schedule data collection visits. Sites were able to choose the exact date and time for their assessments and thus could prepare themselves for the visits.

Sites that participated via ERS Validation Visits, with the exception of STAR 2 home practitioners who could select their exact visit dates, were provided a 3-week timeframe during which the visit would randomly occur. Exact dates were not announced, and facilities had the option of selecting three (3) "black out" dates within the 3-week window. Additionally, sites assessed by ERS staff were coded at STAR levels based on the purpose of their ERS Validation Visit regardless of whether they actually achieved the STAR level or not.

The differences in procedures for the randomly selected sites vs. the ERS Validation Visit sites were expected to impact results. Specifically, it was expected that the sites assessed via ERS Validation Visits would exhibit less quality than sites that had the opportunity to "ready" themselves for the exact date and time of an announced study visit.

The University of Pittsburgh Office of Child Development and the Pennsylvania State University Prevention Research Center completed data analyses.



## Findings

### **Key Findings:**

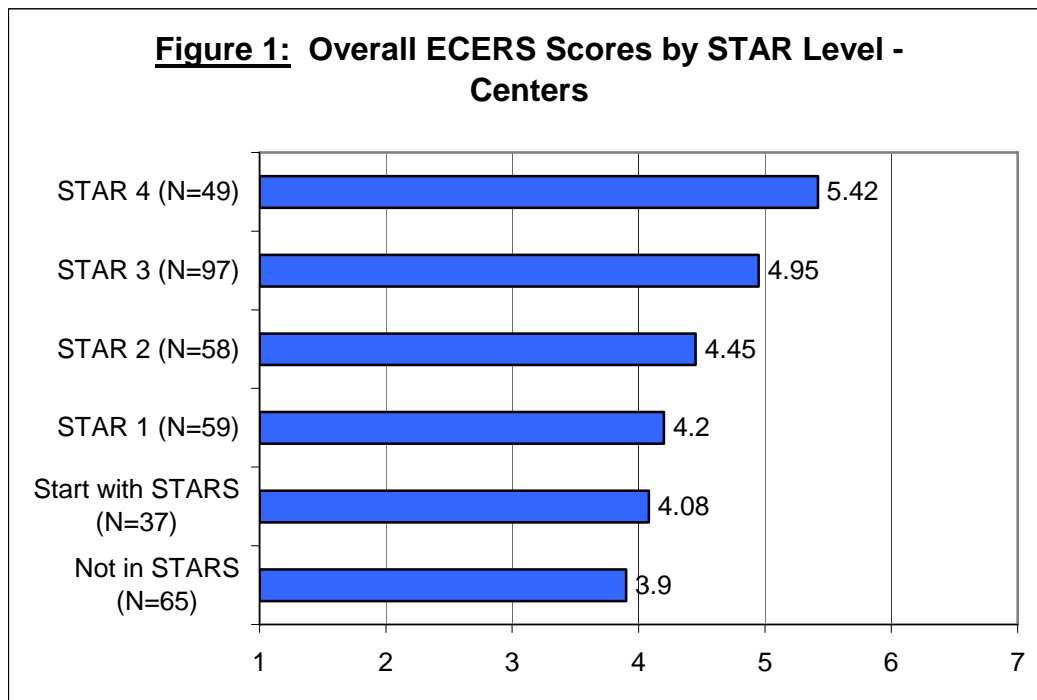
- **Child care quality is improving.** Between 1996 (4.50) and 2002 (3.90), the average ERS scores dropped significantly, indicating a declining trend in quality. The average ERS scores for child care centers assessed in 2006 for sites not participating in STARS (3.94) indicate that the trend of declining quality in child care has been reversed.
- **Keystone STARS centers show higher quality.** Child care centers participating in Keystone STARS are of higher quality than centers throughout the Commonwealth of Pennsylvania not in the Keystone STARS system. Overall ERS scores range from 4.11 for child care centers at Start with STARS to 5.42 for STAR 4 programs.
- Child care centers at the STAR 3 and STAR 4 levels have significantly higher Overall ECERS scores than centers not in the Keystone STARS system or at the Start with STARS level.
- Child care centers at the STAR 4 level have consistently higher scores on all scales of the ECERS than all other child care centers.
- **Programs with a defined curriculum have higher quality.** Child care centers with a defined curriculum scored significantly higher on the Overall ECERS score. Family child care practitioners with a defined curriculum scored significantly higher on the Overall FDCRS score.
- **Teachers with college degrees provide higher quality early education and care.** Both child care centers and family child care homes, regardless of STAR level, had significantly higher scores on the Environmental Rating Scales when the teacher had at least an Associate's Degree.
- Teachers with at least five years of experience had significantly higher ERS scores than those with less experience.
- Family child care practitioners with more than 20 years experience had higher scores on the FDCRS in all areas except Basic Care.
- While professional development requirements were not associated with child care center ECERS scores, family child care practitioners who met at least minimum professional development requirements had significantly higher Overall FDCRS scores and scale scores with the exception of the Basic Care scale.

## **Environmental Rating Scale Scores**

### **Child Care Center Evaluation - Early Childhood Environmental Rating Scale <sup>1</sup>**

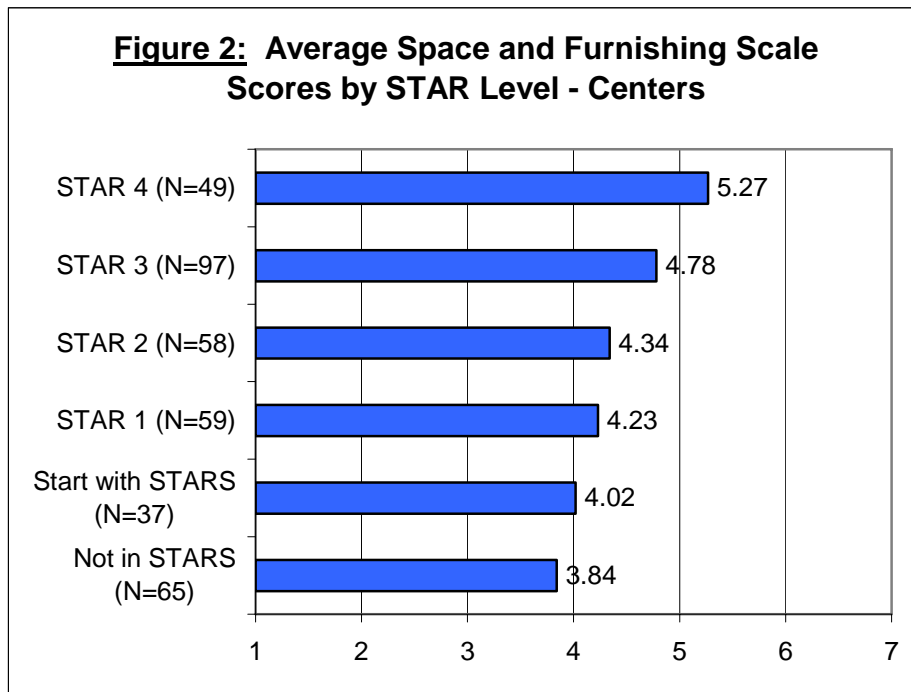
In 2002, child care centers (N=111) across the Commonwealth of Pennsylvania were found to have an average Overall ECERS score of 3.90. This score has remained unchanged when compared to child care centers not participating in STARS (N= 65) in 2006 whose average Overall ECERS score was also 3.90. However, as will be discussed below, child care centers participating in Keystone STARS have higher average overall ECERS scores ranging from 4.08 to 5.42.

**Overall ECERS Scores:** Overall ECERS scores represent an average of all 43 items measured in the 7 subscales. As evidenced by the data presented below, there are significant differences on the ECERS based on STAR level. Child care centers not participating in Keystone STARS have significantly lower ECERS scores than those from STAR 2, STAR 3 and STAR 4 centers. Start with STARS centers have significantly lower scores than STAR 3 and STAR 4 centers. Further, STAR 1 centers have significantly lower scores than centers at STAR 3 and STAR 4 levels ( $p < .05$ ).

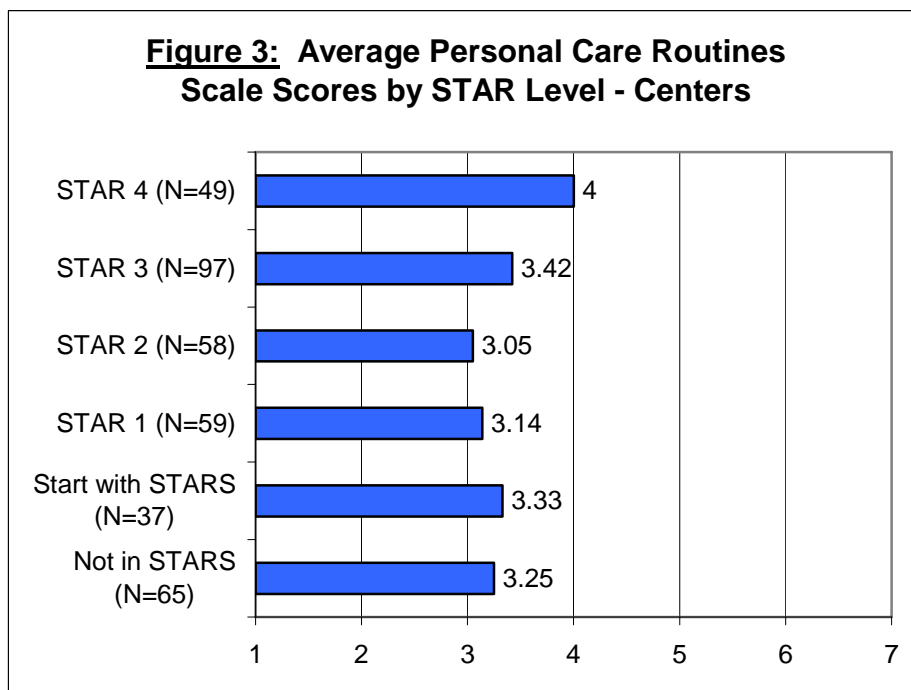


<sup>1</sup> For the purpose of this study, STAR 4 centers who achieved a STAR 4 rating through Keystone STARS (N=9) and STAR 4 centers who were granted a STAR 4 rating because of NAEYC accreditation (N=40) were combined. NAEYC accredited centers had scores that *met or exceeded* STAR 4 centers; thus combining these center scores was deemed appropriate. Further, these data support NAEYC accreditation centers being allowed to enter the system with a STAR 4 rating.

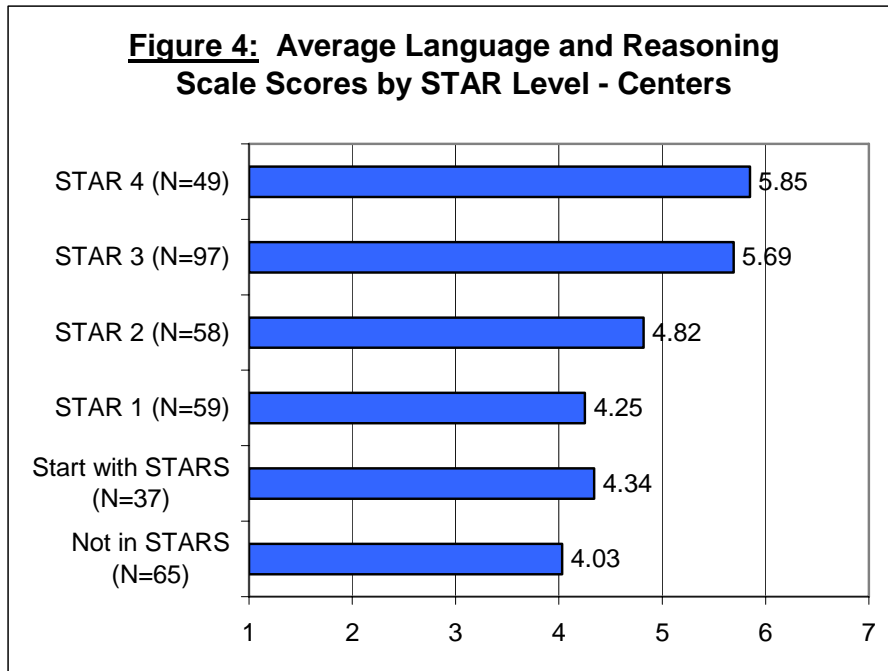
**Space and Furnishings Scale:** This scale measures effective use of indoor and outdoor space for children. Those child care centers not in STARS, in Start with STARS, and STAR 1 centers scored significantly lower than centers with a STAR 3 or STAR 4 rating ( $p < .05$ ).



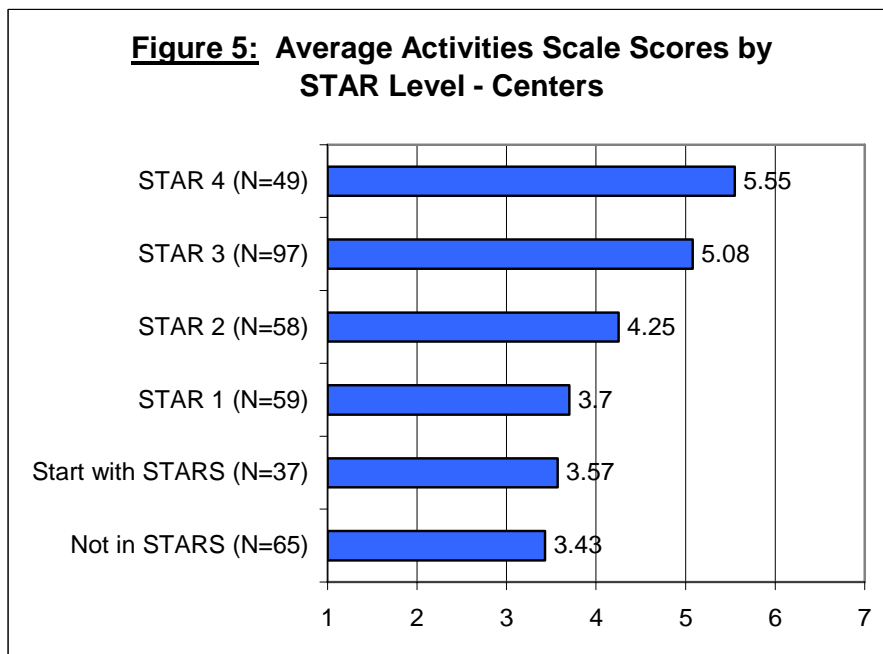
**Personal Care Routines Scale:** This scale measures staff health and safety practices during activities such as nap time, meals, and toiletry/diapering. STAR 4 child care centers had a significantly higher average score on this scale than centers not in STARS, centers in Start with STARS, STAR 1 centers, and STAR 2 centers ( $p < .05$ ).



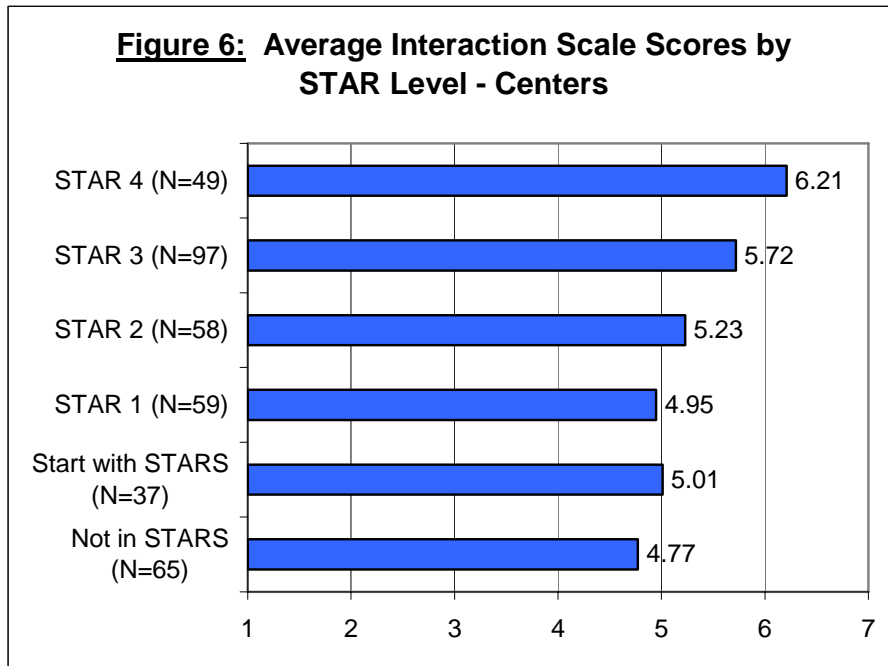
**Language and Reasoning Scale:** This scale measures how staff encourage language and reasoning skills in children. As illustrated in Figure 4, child care centers not in STARS, Start with STARS, STAR 1, and STAR 2 all had significantly lower scores than STAR 3 and STAR 4 centers ( $p < .05$ ).



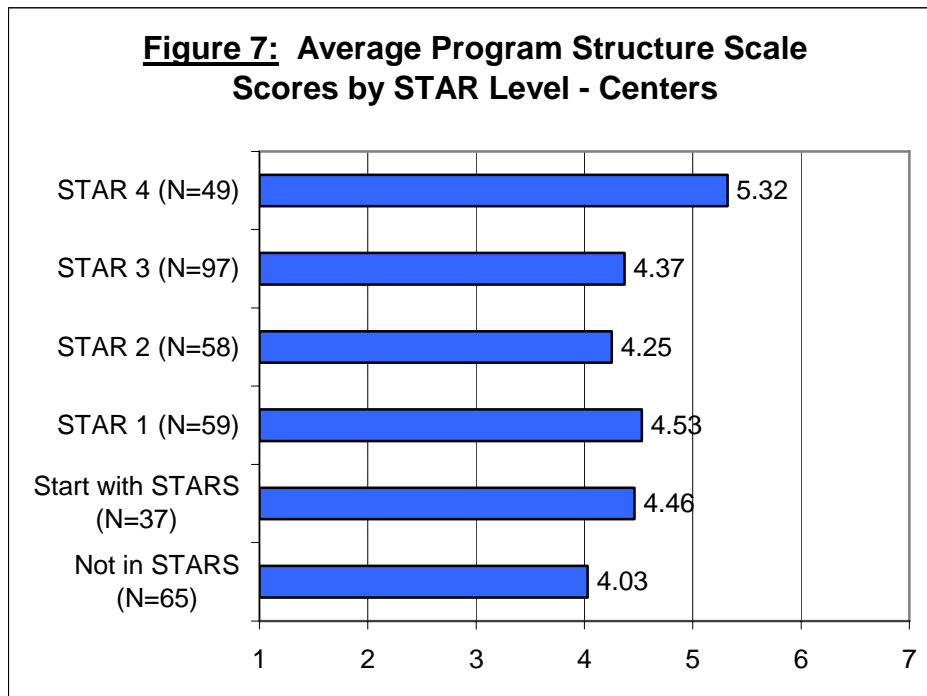
**Activities Scale:** This scale measures a variety of activities for children. Centers not in STARS had significantly lower scores than centers that were STAR 2, STAR 3, and STAR 4. Centers in Start with STARS, STAR 1 centers, and STAR 2 centers had significantly lower scores than STAR 3 and STAR 4 centers ( $p < .05$ ).



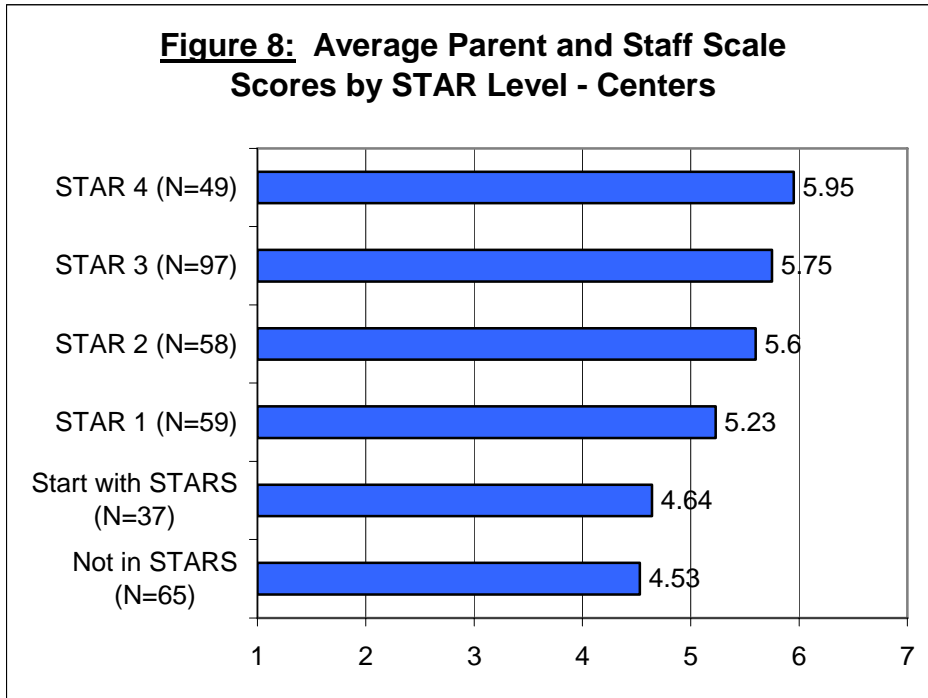
**Interaction Scale:** This scale measures supervision of children, staff-child interaction, and interaction among children. STAR 4 centers had significantly higher scores on the interaction scale than centers not in STARS, Start with STARS centers, STAR 1 centers, and STAR 2 centers ( $p < .05$ ).



**Program Structure Scale:** This scale evaluates program schedule, free play and group time, and provisions for children with disabilities. STAR 4 centers had significantly higher scores than centers not in STARS, STAR 2, and STAR 3 centers ( $p < .05$ ).

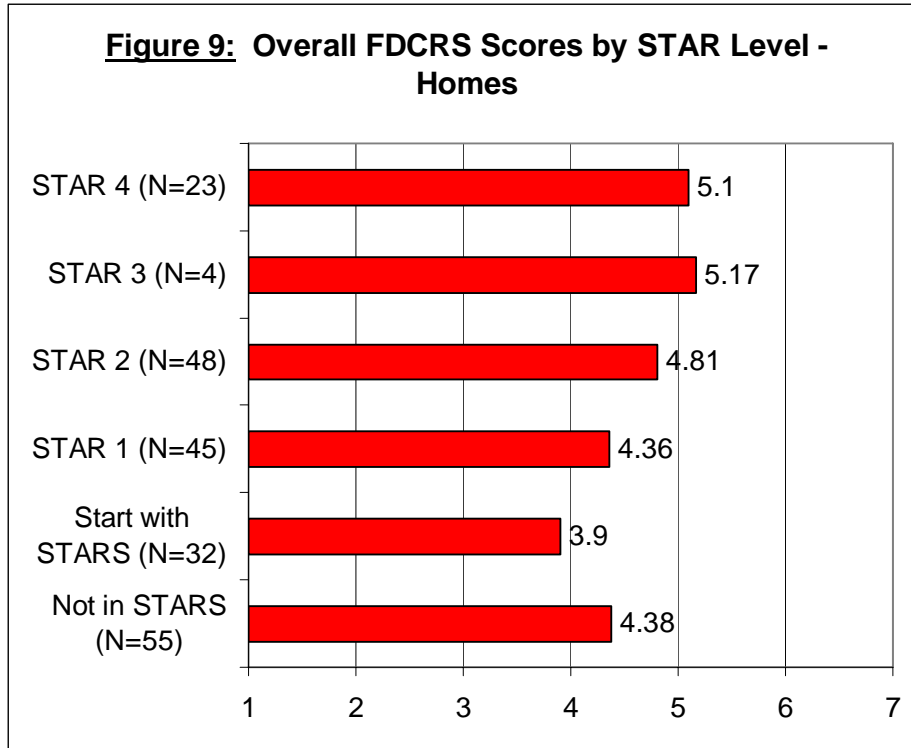


**Parent and Staff Scale:** This scale measures provisions for parents and staff and staff-parent interaction. Centers not in STARS had significantly lower scores than STAR 1 centers, STAR 2 centers, STAR 3 centers, and STAR 4 centers. Start with STARS centers had significantly lower scores than STAR 2 centers, STAR 3 centers, and STAR 4 centers ( $p < .05$ ).



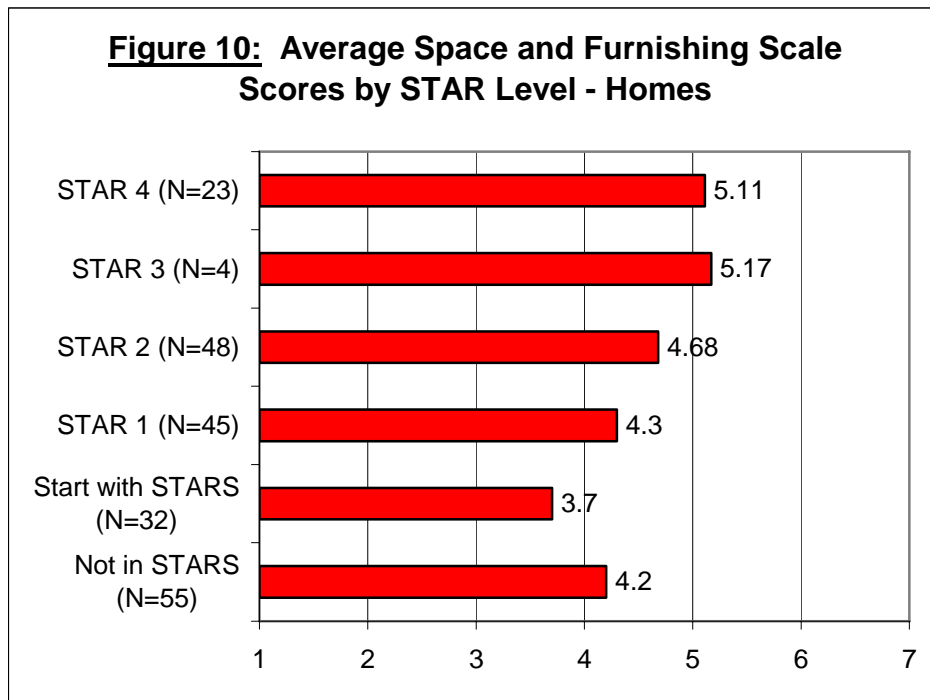
## Family Daycare Environmental Rating Scale (for Home Based Practitioners)<sup>2</sup>

**Overall FDCRS Scores:** Overall FDCRS Scores represent an average of the scores for all 40 items measured in the FDCRS. STAR 4 homes had significantly higher scores than homes not in STARS, Start with STARS homes, and STAR 1 homes ( $p < .05$ ).

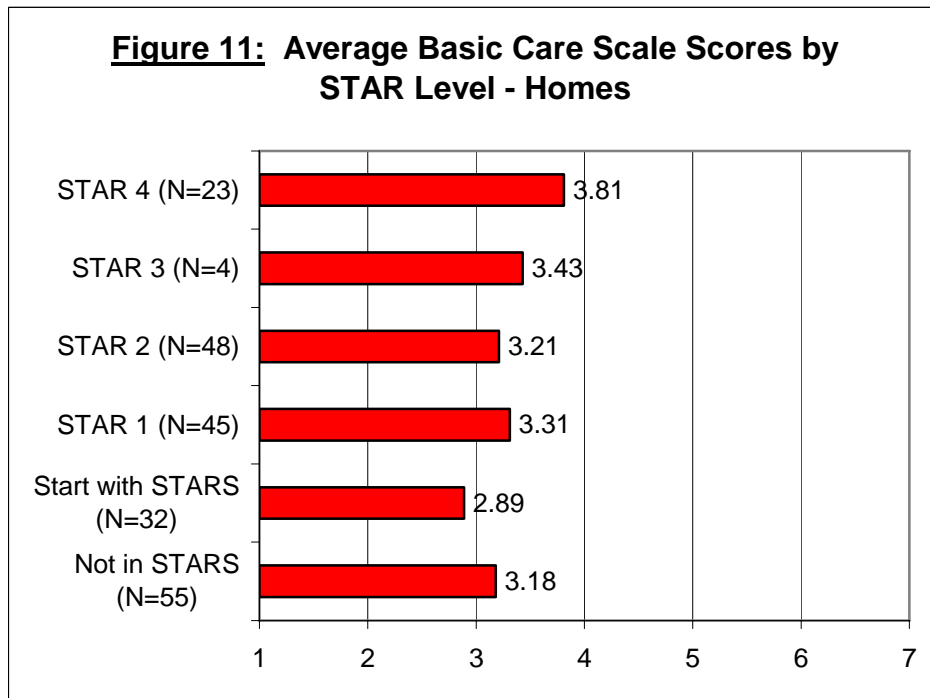


<sup>2</sup> For the purpose of this study, STAR 4 homes who achieved STAR 4 rating through Keystone STARS (N=2) and STAR 4 homes who were granted STAR 4 rating because of accreditation (N=21) were combined. Accredited homes had scores that met or exceeded STAR 4 homes (with the exception of basic care routines); thus combining these scores was deemed appropriate. It is also important to note that due to the small sample of STAR 3 home practitioners, these scores were provided for descriptive purposes only.

**Space and Furnishings Scale:** This scale measures effective use of indoor and outdoor space for children. STAR 4 homes had significantly higher scores than homes not in STARS and Start with STARS homes ( $p < .05$ ).

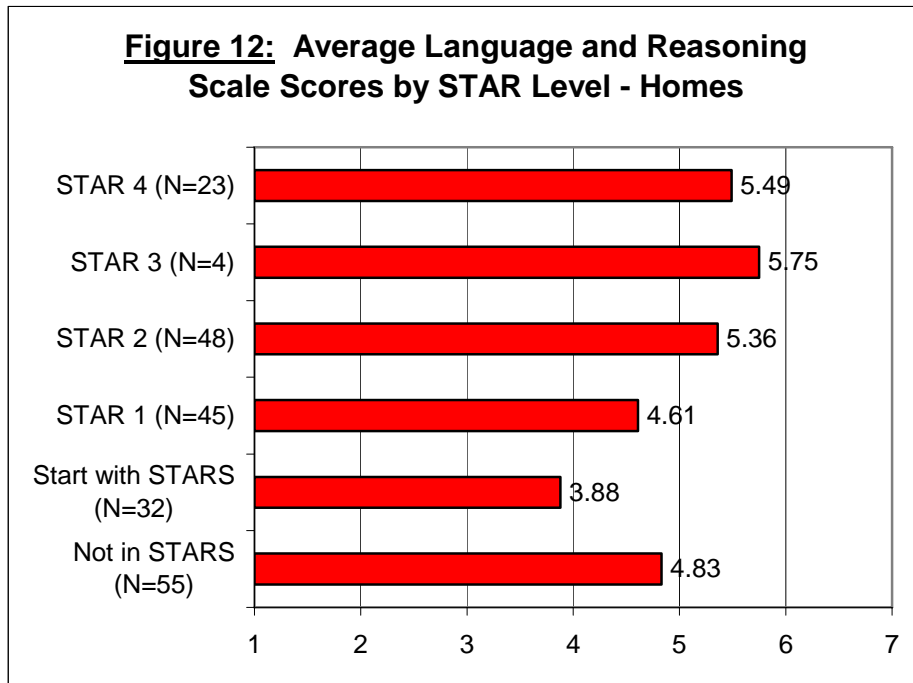


**Basic Care Scale:** This scale measures health and safety practices during activities such as nap time, meals, and toiletry/diapering. There were no significant differences on this scale.

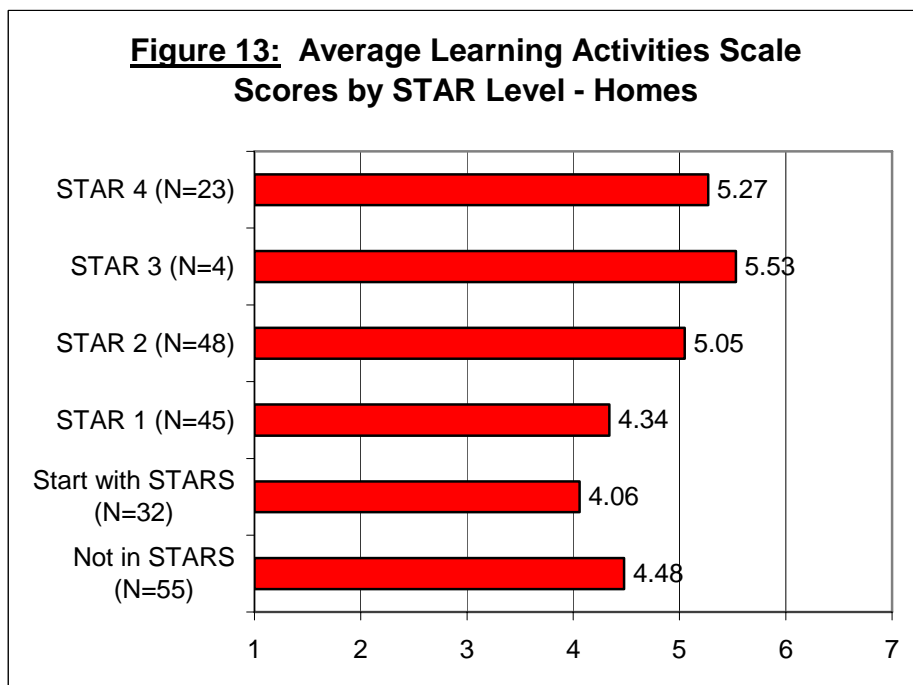




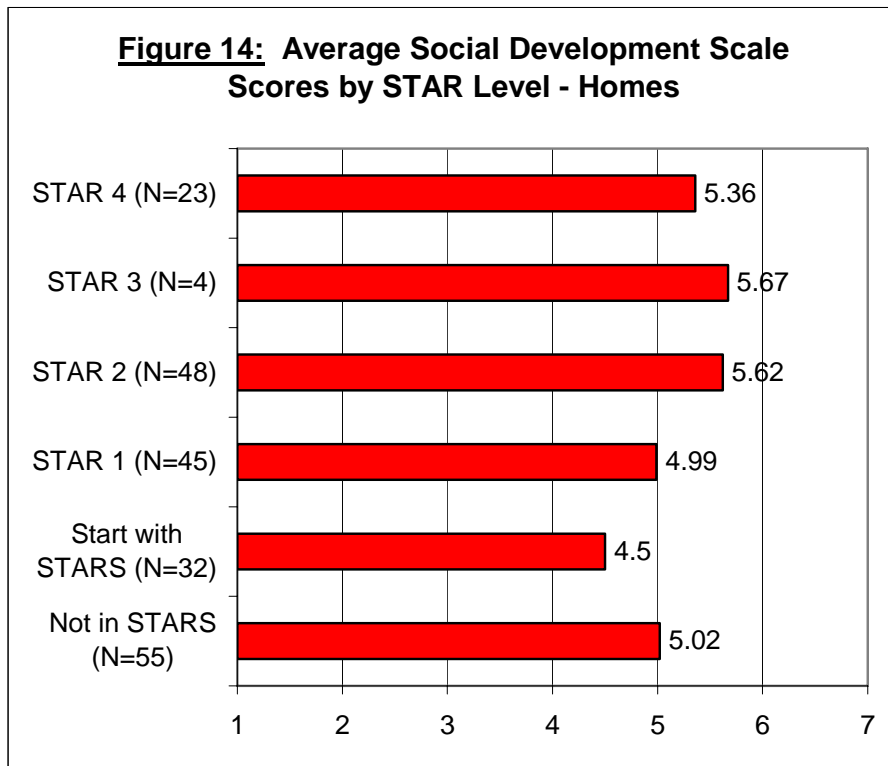
**Language and Reasoning Scale:** This scale measures informal use of language with children and helping children understand language. Start with STARS homes had significantly lower scores than homes not in STARS, STAR 2 homes, and STAR 4 homes ( $p < .05$ ).



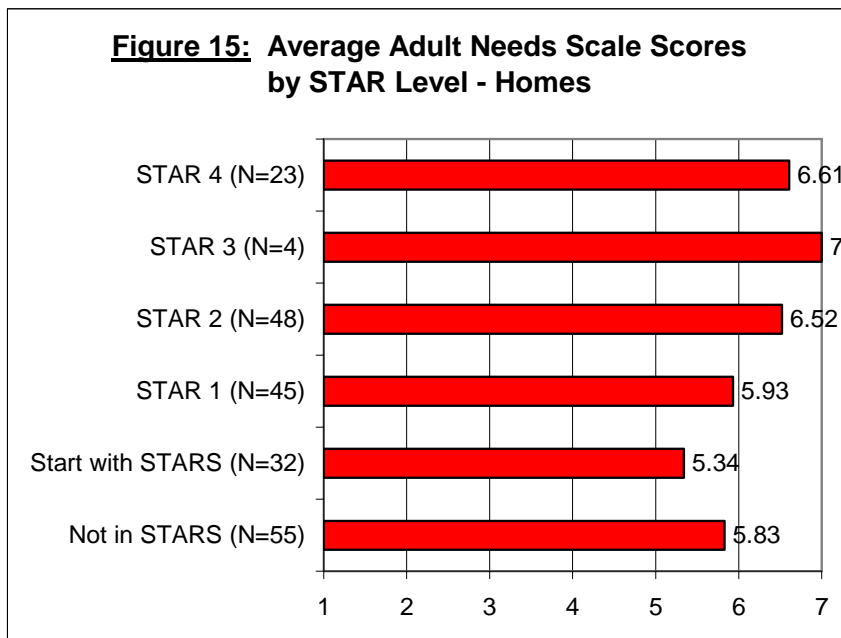
**Learning Activities Scale:** This scale measures learning activities for children. Start with STARS homes had significantly lower scores than STAR 2 homes and STAR 4 homes ( $p < .01$ ).



**Social Development Scale:** This scale measures home practitioner's tone, discipline, and cultural awareness. Homes in Start with STARS had significantly lower scores on this scale than STAR 2 homes ( $p < .01$ ).



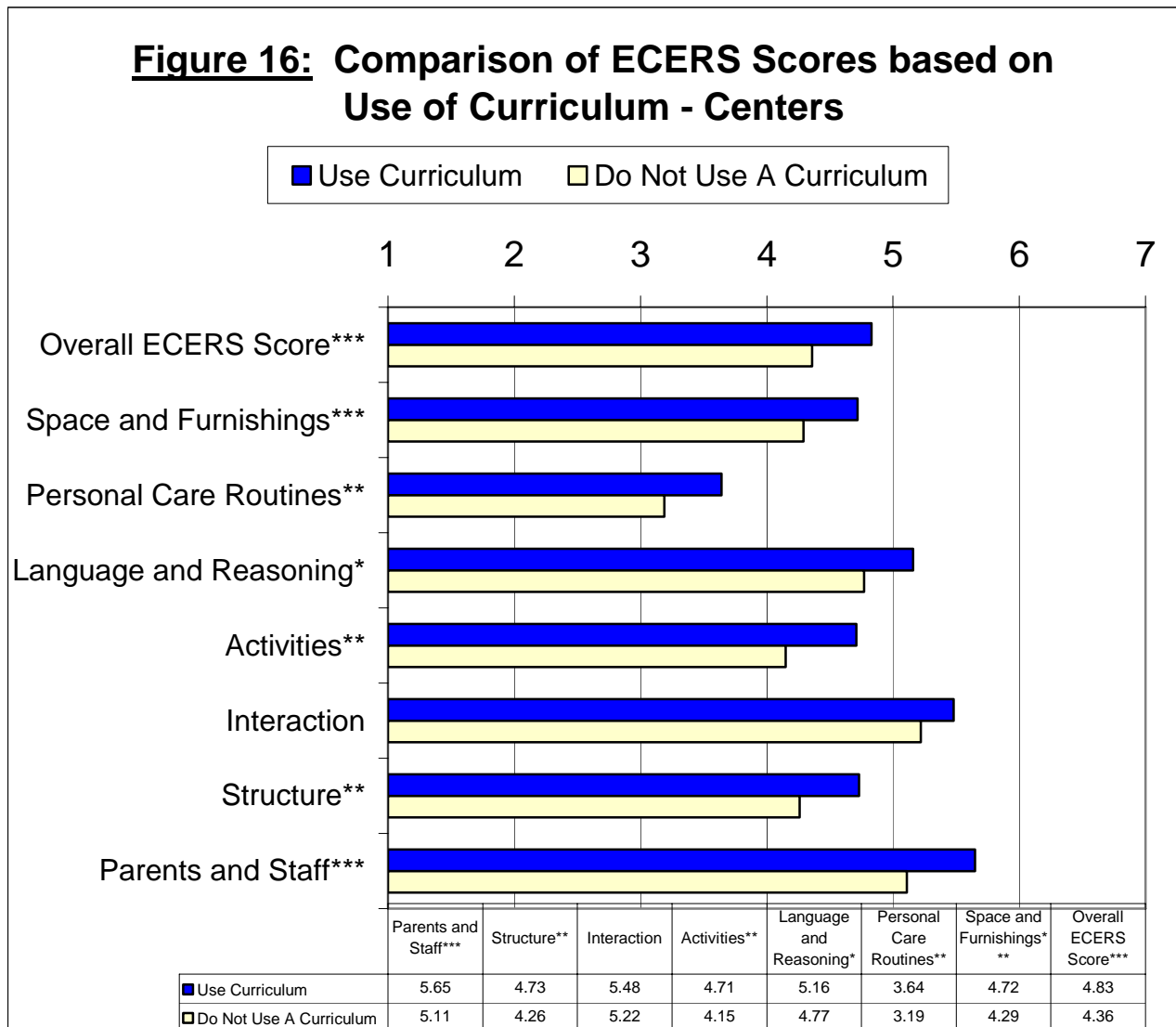
**Adult Needs Scale:** This scale measures the practitioner's relationship with parents, balancing personal and caregiver responsibilities, and opportunities for professional growth. Homes not in STARS and Start with STARS homes had significantly lower scores than STAR 2 homes and STAR 4 homes ( $p < .05$ ).



## Use of a Curriculum

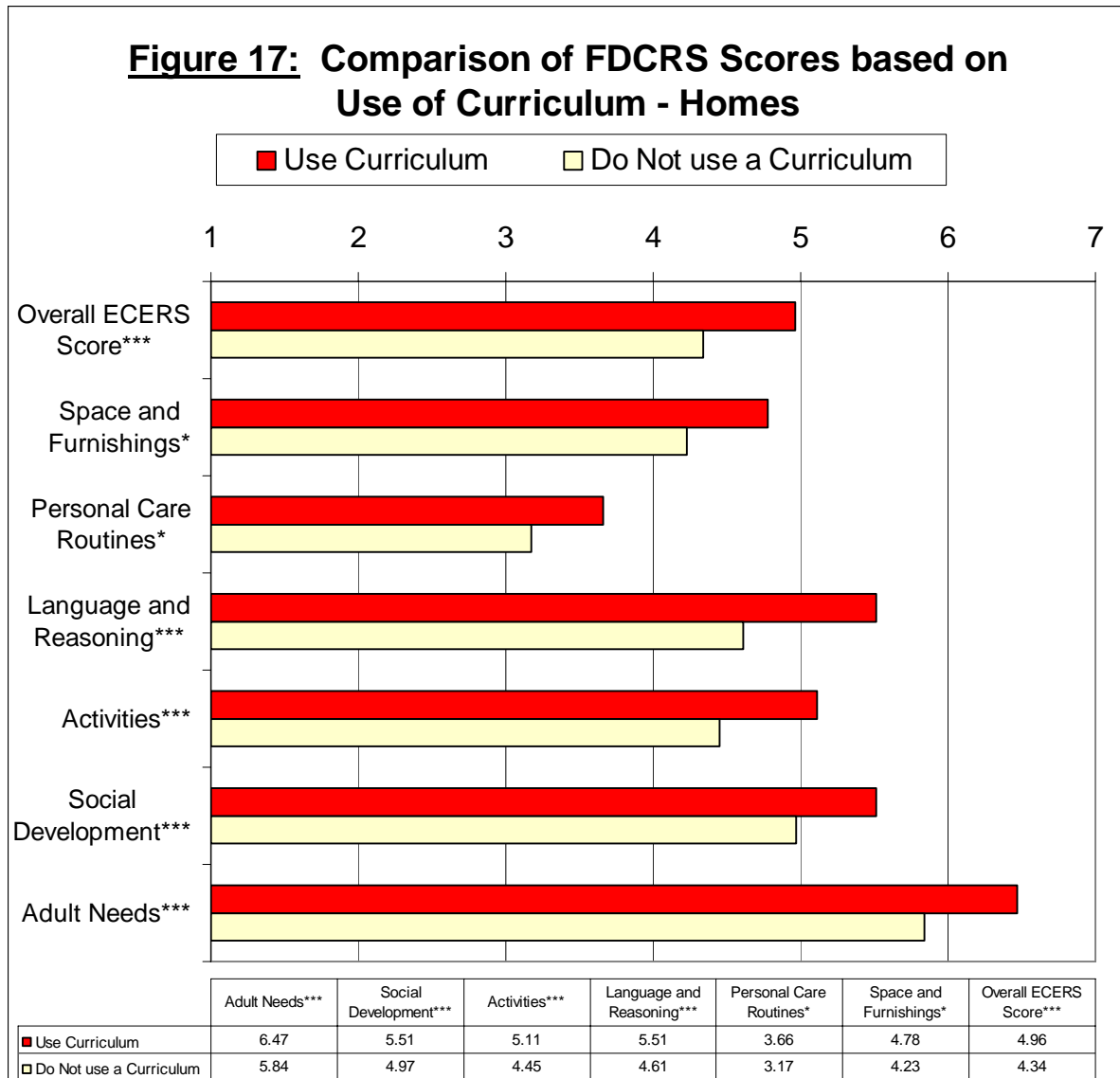
Results show that the use of a defined curriculum is related to the quality of the program. Similar results were found in the 2002 quality study as well.

**Centers:** Child care centers who reported that they used a standardized curriculum (N=126) had significantly higher ECERS scores on all scales with the exception of the Interaction scale. Figure 16 shows a comparison of scores.



Note: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

**Family child care homes:** Family child care homes who reported that they used a standardized curriculum (N= 43) had significantly higher FDCRS scores on all scales. Figure 17 shows a comparison of scores.



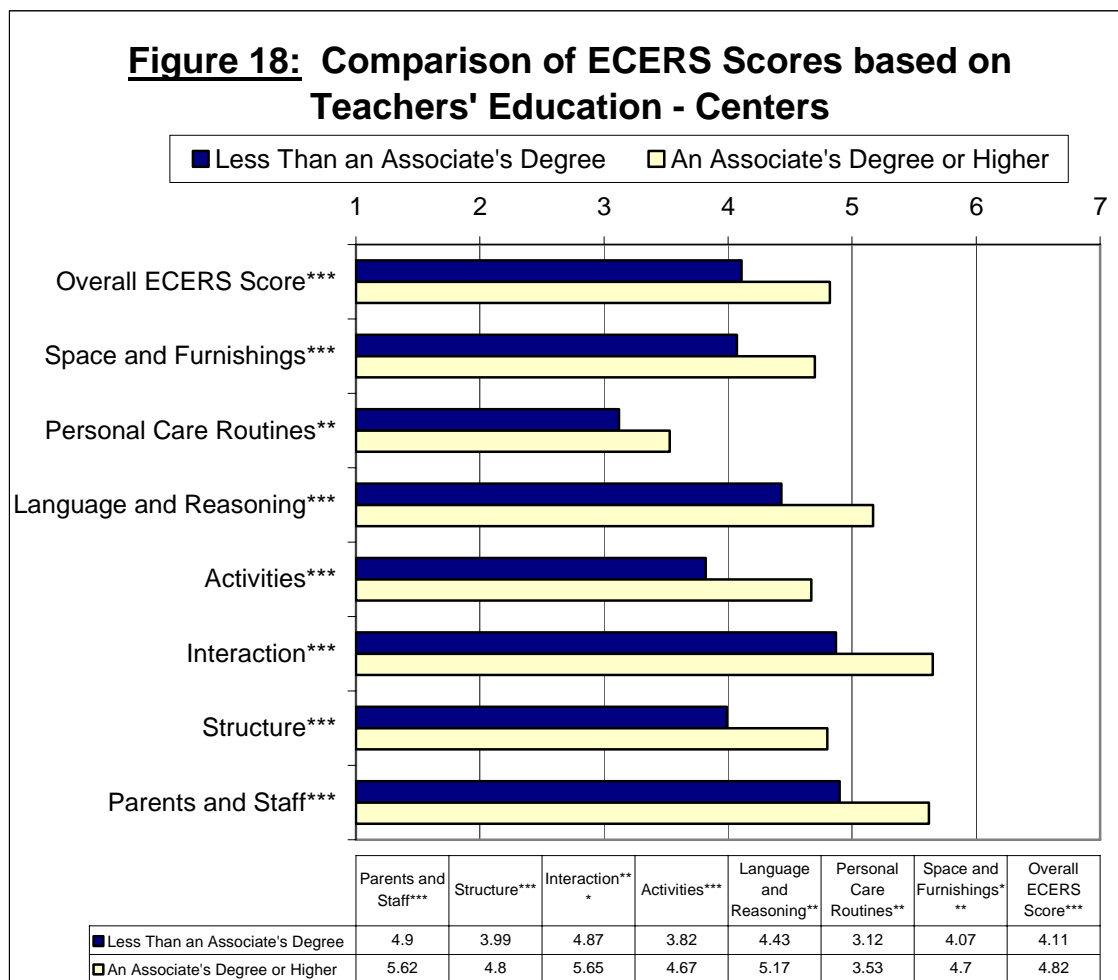
Note: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

## Education and Experience

Results show that a teacher's education and experience is related to the level of quality in the program. Similar results were also found in the 2002 study.

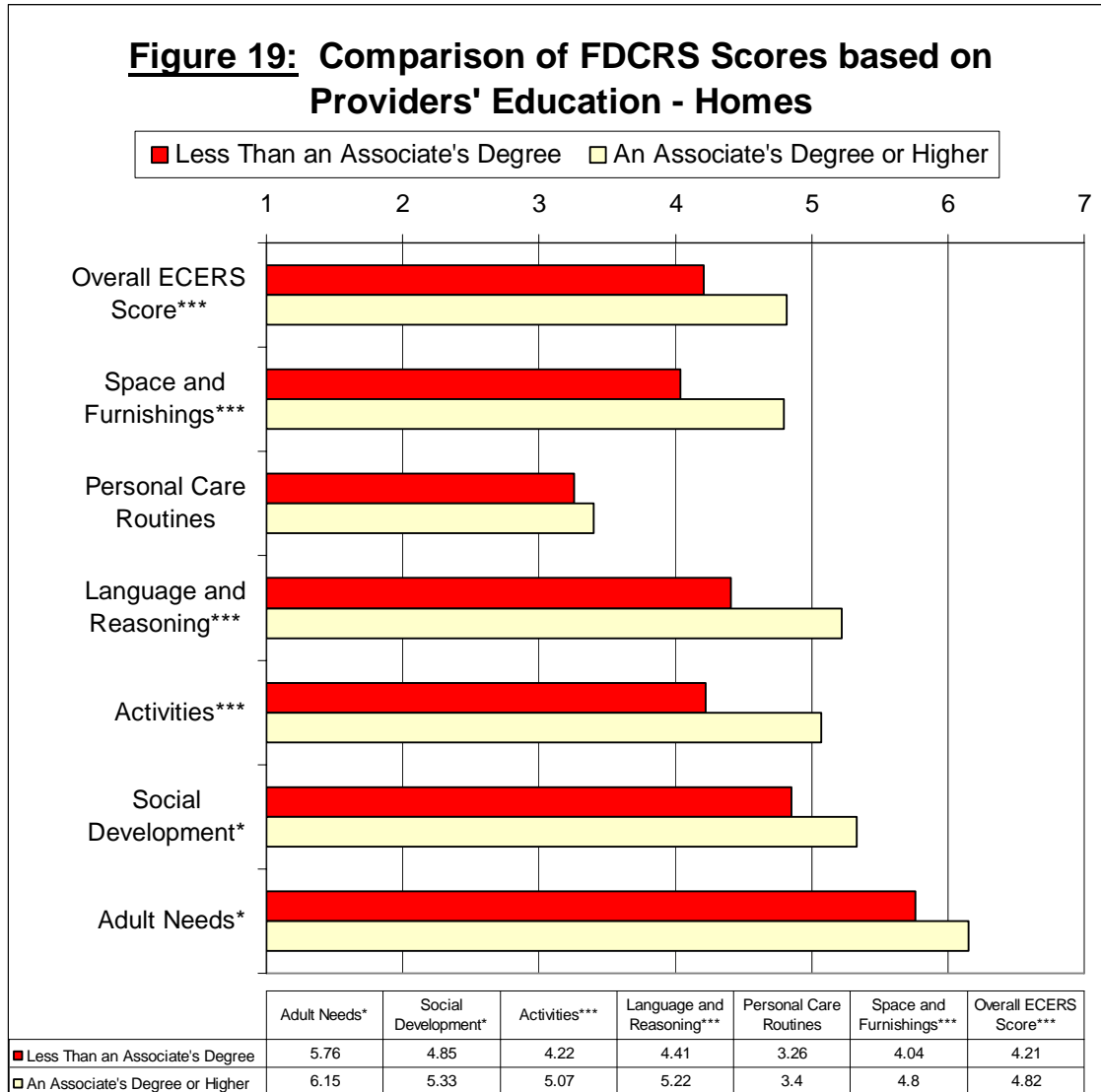
### Education

**Teachers' Education in Centers:** As shown in Figure 18, teacher's education was a crucial determinant of ECERS scores. Teachers with an Associate's Degree or higher (N= 209) scored significantly higher on the Overall ECERS score and all subscale scores. There were no significant differences between teachers with an Associate's Degree (N=67) and teachers with a Bachelor's Degree or higher (N=142).



Note: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

**Family Child Care Home Practitioners' Education:** As shown in Figure 19, teacher's education was also significantly associated with FDCRS scores. Teachers with an Associate's Degree or higher (N=67) scored significantly higher than teachers without at least an Associate's Degree (N=105) on the Overall FDCRS score and all subscale scores. There were no significant differences between teachers with an Associate's Degree (N=34) and teachers with at least a Bachelor's Degree (N=33).



Note: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Although this study demonstrated no differences in results based on whether teachers had an Associate's or a Bachelor's Degree, the study did not inquire about type of degree; thus, conclusions cannot be drawn regarding whether an Associate's or Bachelor's in early childhood education produces differences in quality of early learning environments. Future evaluations may need to address this issue and inquire about type of degree.

## Experience

***Teachers' Experience in Centers:*** On average, teachers in this sample had 9.5 years experience in the classroom with a range from 0 to 40 years. An independent t-test showed that at five years, teachers had significantly higher scores on the Overall ECERS score, Space and Furnishings scale, Learning Activities scale, and the Structure scale ( $p < .05$ ). For classrooms in which teachers had 10 years of experience, there were significantly higher scores on the overall ECERS, Space and Furnishings scale, Language and Reasoning scale, Learning Activities scale, Interaction scale, and Structure scale ( $p < .05$ ). After 10 years of experience, there were very few significant differences and after 20 years experience, there were no significant differences found.

***Family Child Care Home Practitioners' Experience:*** On average, practitioners in this sample had 13.6 years experience in the classroom with a range from 1 to 51 years. An independent t-test showed that at 5 years, teachers had significantly higher scores on the Overall FDCRS score, Social Development, and Adult Needs ( $p < .05$ ). In contrast to teachers' experience in centers, it wasn't until after 20 years experience that differences became apparent again. After 20 years, practitioners scored significantly higher on the Overall score, Space and Furnishings, Language and Reasoning, Activities, Social Development, and Adult Needs ( $p < .05$ ).

## Professional development Requirements

***Center Teachers:*** There were few differences between teachers who met professional development requirements (N=179) and those who did not (N=29). Surprisingly, teachers who did not meet the yearly professional development requirements scored significantly better on the Interaction scale (5.99 compared to 5.03) and on the Parents and Staff scale (5.89 compared to 4.98). There were no significant differences between teachers' education and experience on their professional development hours, so this finding is perplexing and needs to be examined further before any conclusions can be made.

***Family Child Care Home Practitioners:*** Of the practitioners who reported on professional development completed, 153 practitioners completed their required professional development as compared to 20 practitioners who did not complete their required professional development hours. Practitioners who completed the appropriate number of hours outscored those who did not on their Overall FDCRS score and every scale with the exception of the Basic Care scale ( $p < .05$ ).

## Comparison of Scores to Previous Quality Studies

Sites included in the 2002 Pennsylvania Early Childhood Quality Settings Study were compared to sites participating in the 2006 Keystone STARS Evaluation. Overall, sites assessed in 2006 were of higher quality than programs assessed in 2002. This was primarily due to sites participating in the Keystone STARS program, particularly at STAR 2 and above, being of significantly higher quality than the 2002 sites. Further, quality tended to be higher in sites in 2006 compared to results from previous studies in Pennsylvania (see Table 1 for centers and Table 2 for family child care homes).

**Table 1: Comparisons to Previous Early Childhood Quality Studies – Child Care Centers**

<u>Year</u>	<u>ECERS Scores</u>
1978	4.75 (CDPES)
1984	4.00
1990	4.00
1996	4.50
2002	3.90
2006	3.94 <i>Regulated</i>
2006	4.11 <i>Start with STARS</i>
2006	4.24 <i>STAR 1</i>
2006	4.41 <i>STAR 2</i>
2006	4.95 <i>STAR 3</i>
2006	5.42 <i>STAR 4</i>

**Table 2: Comparisons to Previous Early Childhood Quality Studies – Group and Family Child Care Homes**

<u>Year</u>	<u>FDCRS Scores</u>
2002	4.10 for GDCH and 3.90 for FDCH
2006	4.38 <i>Regulated</i>
2006	3.90 <i>Start with STARS</i>
2006	4.36 <i>STAR 1</i>
2006	4.81 <i>STAR 2</i>
2006	5.17 <i>STAR 3 (only 4 sites)</i>
2006	5.10 <i>STAR 4</i>

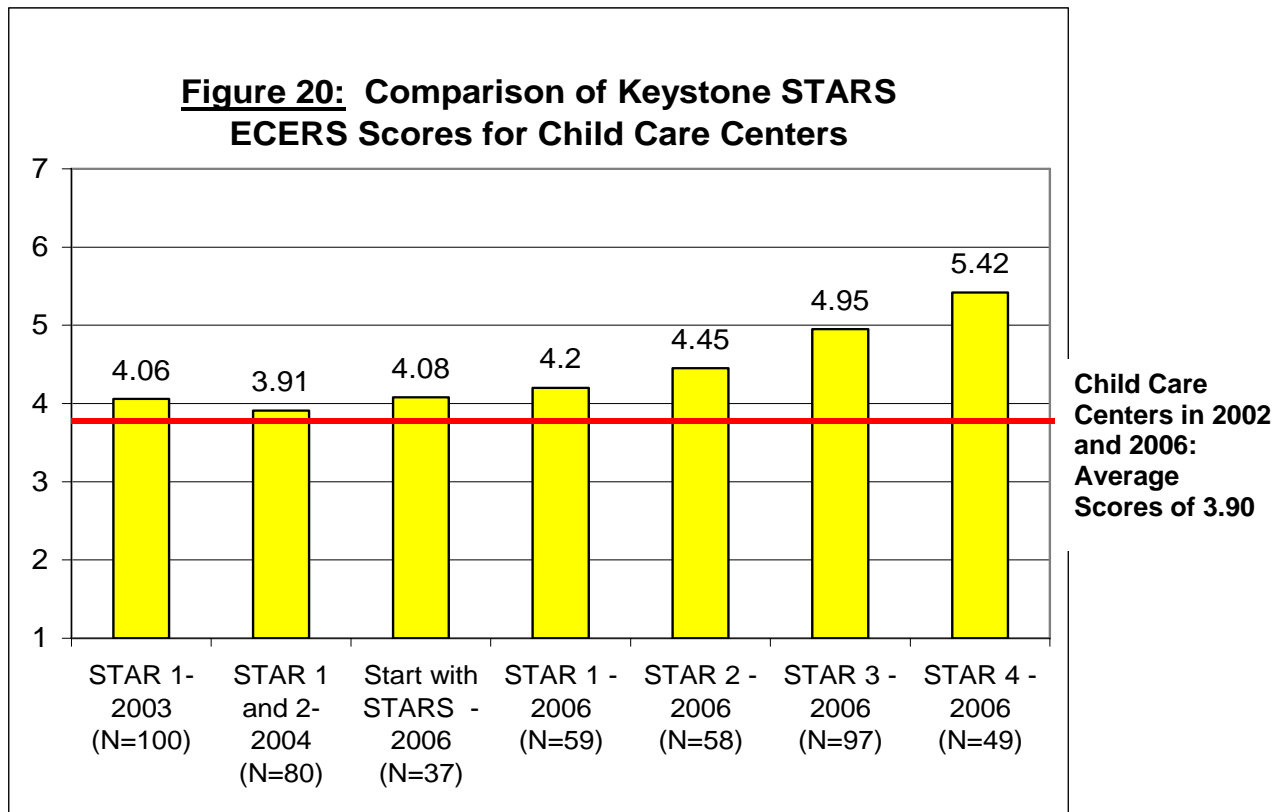


For child care centers, there were 100 sites from 2002 that were compared to 355 sites for 2006 (analyses did not include the group homes assessed using the ECERS-R). When comparing 2002 sites to all 2006 sites combined, 2006 sites had significantly higher quality in Overall ECERS score and subscales for Space and Furnishings, Language and Reasoning, Activities, Interaction, and Parents and Staff than did 2002 sites. These results were statistically significant utilizing an ANOVA One-Way analysis. Additional analyses revealed which 2006 centers at specific STAR levels were of significantly higher quality than the 2002 sites (see Table 3).

**Table 3: Significant Differences in Quality Scores Comparing 2002 Centers to Centers at Various Star Levels in 2006**

<b>ECERS Scale</b>	<b>2006 Centers of Significantly Higher Quality than 2002 Centers</b>
ECERS Overall Score	STAR 2 STAR 3 STAR 4/ STAR 4 accredited
Space and Furnishings	STAR 3 STAR 4/ STAR 4 accredited
Personal Care	No differences
Language and Reasoning	STAR 2 STAR 3 STAR 4/ STAR 4 accredited
Activities	STAR 1 STAR 2 STAR 3 STAR 4/ STAR 4 accredited
Interaction	STAR 3 STAR 4/ STAR 4 accredited
Program Structure	STAR 4/ STAR 4 accredited
Parents and Staff	STAR 1 STAR 2 STAR 3 STAR 4/ STAR 4 accredited

As indicated in Figure 20 below, in both 2002 and 2006 child care centers across the Commonwealth of Pennsylvania had an average ECERS score of 3.90. As Keystone STARS was implemented, in 2003 and 2004, scores for centers in Keystone STARS started out higher at 4.06 (assuming that the highest quality and most motivated centers first enrolled in the system) and dropped the next year to 3.91, again relatively the same as child care centers across the Commonwealth in both 2002 and 2006. What is most striking is that all Keystone STARS centers in the 2006 evaluation received scores that are above the average Pennsylvania score, with scores ranging from 4.08 to 5.42. **Thus, it appears as though centers participating in Keystone STARS are of higher quality than centers not in the STARS system.** Further, centers participating in Keystone STARS are continuing to improve their quality as they earn higher STARS ratings.



For homes (family and group practitioners), there were 127 sites in 2002 that were compared to 207 sites in 2006. When comparing 2002 sites to all 2006 sites combined, 2006 sites had significantly higher quality in Overall FDCRS score and subscales for Space and Furnishings, Basic Care, Learning Activities, Social Development, and Adult Needs than did 2002 sites. These results were statistically significant utilizing an ANOVA One-Way analysis. STAR 3, STAR 4, and STAR 4 accredited 2006 homes were combined for additional analyses, and these analyses revealed which 2006 homes at specific STAR levels were of significantly higher quality than the 2002 homes (see Table 4).

**Table 4: Significant Differences in Quality Scores Comparing 2002 Family and Group Homes to Home Practitioners at Various STAR Levels in 2006**

<b>FDCRS Scale</b>	<b>2006 Homes of Significantly Higher Quality than 2002 Homes</b>
FDCRS Overall Score	STAR 2 STAR 3/ STAR 4/ STAR 4 accredited
Space and Furnishings	STAR 2 STAR 3/ STAR 4/ STAR 4 accredited
Basic Care	STAR 3/ STAR 4/ STAR 4 accredited
Language and Reasoning	STAR 2 STAR 3/ STAR 4/ STAR 4 accredited
Learning Activities	STAR 2 STAR 3/ STAR 4/ STAR 4 accredited
Social Development	Regulated STAR 2 STAR 3/ STAR 4/ STAR 4 accredited
Adult Needs	STAR 1 STAR 2 STAR 3/ STAR 4/ STAR 4 accredited

## Conclusions/Recommendations

- There is sufficient evidence to support the Keystone STARS quality rating system as a reliable indicator of quality. Both centers and home-based child care practitioners with higher STAR ratings had consistently higher scores on the environmental rating scales. Progression through the STARS system appears to be a reliable predictor of attaining higher quality at the centers.
- Keystone STARS continues to improve quality in child care centers. Child care centers participating in Keystone STARS in 2006 have higher quality than the Pennsylvania average for child care centers and are showing higher quality now than at the inception of the STARS program.
- Both child care centers and home-based practitioners with a defined curriculum have higher overall ERS scores, and almost all of the subscale scores are higher. **It is recommended that both centers and homes report using a well-defined curriculum as part of the progression through the STARS system.**
- Child care center classrooms and family child care home practitioners in which a teacher has at least an Associate's Degree or higher had significantly higher ERS scores. Although this study demonstrated no differences in results based on whether teachers had an Associate's or a Bachelor's Degree, the study did not inquire about type of degree; thus, conclusions cannot be drawn regarding whether an Associate's or Bachelor's in early childhood education produces differences in quality of early learning environments. Future evaluations may need to address this issue and inquire about type of degree. **Meanwhile, maintaining the standards set forth in the STARS system for teachers having at least an Associate's Degree seems prudent.**
- After 5 to 10 years experience in the classroom, experience does not seem to be associated with center-based environmental rating scores. **It is recommended that five years experience for at least some teachers in each center should be the minimum standard for higher STAR levels.**
- Home-based practitioners with 20 years experience have higher scores in almost all areas of the FDCRS. **It is recommended to examine this finding further and to consider offering special provisions for teachers with at least 20 years experience who do not have an advanced degree when you next update the Family Child Care Home Keystone STARS Standards.**
- Home-based practitioners who met at least the minimum required hours of professional development had significantly higher scores on all areas of the FDCRS, with the exception of the Basic Care scale. However, this finding did not hold true with center-based programs. **It is recommended that this finding be examined further.**

## Limitations

- The Family Day Care Rating Scale (FDCRS) is currently being revised because there has been concern about its accuracy.
- Although this study demonstrated no differences in results based on whether teachers had an Associate's or a Bachelor's Degree, the study did not inquire about type of degree; thus, conclusions cannot be drawn regarding whether an Associate's or Bachelor's in early childhood education produces differences in quality of early learning environments. Future evaluations may need to address this issue and inquire about type of degree.
- In several FDCRS scales, family child care providers not participating in STARS received higher ERS scores than those at the Start with STARS or STAR 1 levels. This finding has several plausible explanations:
  - It is likely that the most needy family child care practitioners entered the STARS program in its first year of implementation with family homes because of the targeted financial supports available to them. The Keystone STARS program has additional paperwork demands that lead to increased time demands for practitioners. Thus, homes that served a number of children with child care subsidies and thus would be eligible for financial rewards for participation were likely the first enrollees. Evidence shows that high quality family child day care homes do not serve high numbers of children on subsidies compared to lower quality homes (Etheridge, et al., 2002). Thus, it is likely that the Start with STARS and STAR 1 homes served high numbers of children with subsidies and were the most in need of help to implement quality practices. As more of the family child care community has the opportunity to enroll in STARS, it is likely that the finding of higher scores among regulated homes compared to Start with STARS and STAR 1 sites will dissipate. The Keystone STARS program is continuing efforts to recruit family child care programs into Keystone STARS.
  - Family child care providers have only had access to the STARS system since July 2005. As a result, staff at the Regional Keys have had far more experience supporting child care centers compared to home-based practitioners. Further, there has been more time to adjust the Standards for centers to ensure they best support quality. As staff have more time to adjust to working in homes and more experience with homes, they will become more adept at supporting quality practices in home-based programs through technical assistance and appropriate applications of the Standards.
  - Finally, the revision of the Family Day Care Rating Scale may lead to changes in how items are coded and their relationship to what are considered to be quality practices. It will be important to explore how scores may change once the revised FDCRS becomes the standard for observational assessment.