Research Overview

Purpose: to evaluate the quality of classroom environments across all STAR levels, validate the STARS hierarchical program structure, identify strengths and weaknesses of programs in Start with STARS, STAR 1 and STAR 2, and to track growth in scores for these STAR levels over time

Participants: 100 Keystone STARS programs, including Start with STARS, STAR 1, and STAR 2

Methods: Random Sample

Findings: A significant positive correlation was found between STAR level and ERS scores (r = 0.62, p-value <.0001), suggesting that ERS scores increase as STAR level increases.

Assessing Quality across All STAR Levels

The Environment Rating Scale (ERS) is a reliable and valid observational assessment tool used to evaluate the quality of early childhood programs. The ERS consists of four scales based on age level and provider type: the Early Childhood Environment Rating Scale – Revised (ECERS-R), the Infant Toddler Environment Rating Scale – Revised (ITERS-R), the School Age Environment Rating Scale (SACERS), and the Family Child Care Environment Rating Scale – Revised (FCCERS-R). Each scale is comprised of subscales that assess the quality of different aspects of a program including:

- Physical environment
- Health and safety procedures
- Interactions between staff, children and parents
- Classroom activities
- Opportunities for learning and development.

An essential component of Pennsylvania's continuous quality improvement efforts, ERS score requirements are incorporated in the Keystone STARS standards for higher STAR levels. Assessments are conducted every two years and programs must meet a minimum score in order to attain a STAR 3 or STAR 4 rating. The 2010-2011 OCDEL Annual Report reported a seven year trend of increasing ERS scores for STAR 3 and STAR 4 programs.

Environment Quality Investigation Project (EQIP)

As part of the Environment Quality Investigation Project (EQIP), the Office of Child Development and Early Learning partnered with the Pennsylvania Key to conduct ERS assessments for a random sample of Keystone STARS programs at the Start with STARS, STAR 1 and STAR 2 levels, which are currently not required to have the assessment. The purpose of the project is to evaluate the quality of classroom environments across all STAR levels, validate the STARS hierarchical program structure, identify strengths and weaknesses of programs in Start with STARS, STAR 1 and STAR 2, and to track growth in scores for these STAR levels over time.

Methods

A random sample of 100 programs at the Start with STARS, STAR 1 and STAR 2 level was drawn in 2011-2012, stratified by Regional Key and provider type (child care center, family child care home, or group child care home). Participation in the project is voluntary and the results of the assessments are to remain confidential unless the participant chooses to share the results with their Regional Key for technical assistance and professional development purposes. Of the 100 sampled programs, 46 agreed to receive the ERS assessment. The remaining

programs had either recently closed their program, declined, or were unreachable. Assessments were conducted between February and July of 2012. Results from the sampled programs were combined with data already collected for STAR 3 and STAR 4 programs and STAR 2 family child care programs, in order to analyze the difference in ERS scores across all STAR ratings.

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Findings

The results in Table 1 show higher average ERS scores for higher STAR levels. Similar results can be seen when separating the data by provider type. A significant positive correlation was found between STAR level and ERS scores (r = 0.62, p-value <.0001), suggesting that ERS scores increase as STAR level increases. However, it should be noted that the sample represents less than five percent of the Start with STARS, STAR 1 and STAR 2 programs in Pennsylvania. As a general rule, caution should be taken when the number assessed within each STAR level is less than 30.

A multiple regression model controlling for Regional Key and program type estimates that average ERS scores increase by 0.44 for each step up in STAR level (p-value < .0001). A t-test was used to test the hypothesis that STAR 1 ERS scores are equal to STAR 2 scores. The results indicate that there is significant difference in scores between the two STAR levels (t-value = 2.18, p-value = .0325). The boxplots in Figure 1 are a visual representation of the distribution of scores by STAR level. The bottom and top of the

Table 1: Average ERS Scores by STAR Level and Provider Type

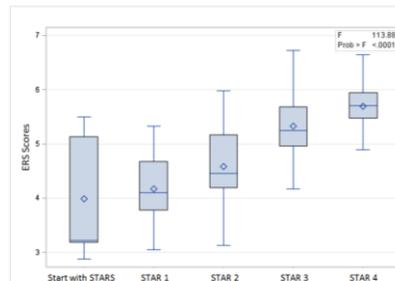| STAR Level	# Assessed	Average Score
Start with STARS	9	3.99
STAR 1	18	4.17
STAR 2	49[*]	4.58
STAR 3	285	5.33
STAR 4	279	5.70

[*]Includes 19 EQIP participants in addition to 30 STAR 2 family programs

rectangular boxes depict the 25th and 75th percentiles respectively, while the line within the box depicts the 50th percentile and the diamond shape represents the average score. The hashes that extend from the boxes reveal the minimum and maximum scores. From Figure 1, it is clear

Figure 1: Distribution of ERS Scores by STAR Level

that ERS scores are distributed higher as STAR ratings increase. Also, the boxplots reveal the wide range of scores that were discovered at the Start with STARS level.

Table 2 presents the correlations between STAR level and ERS scores by scale and subscales. All coefficients were determined to be statistically significant (p-value <.0001). Correlation coefficients can only take on values between -1.0 and 1.0 where positive coefficients signify that ERS scores increase with higher STAR levels and higher correlation coefficients represent stronger associations. From table 2, it can be see that STAR level and ERS scores were positively correlated across all subscales, with the strongest associations occurring within the Activities subscale.

Table 2: Correlations between STAR Level and ERS Scores by Scale and Subscale

	Space & Furnishings	Personal Care Routines	Language-Reasoning	Activities	Interaction	Program Structure	Parents & Staff
ECERS-R	0.45	0.39	0.39	0.54	0.32	0.44	0.41
ITERS-R	0.30	0.27	0.30	0.46	0.28	0.32	0.38
FCCERS-R	0.45	0.40	0.44	0.63	0.28	0.44	0.44
SACERS	0.27	0.34	-	0.39	0.36	0.30	0.38

Correlation coefficients include STAR 3 and STAR 4 programs in addition to the programs sampled as part of EQIP

Next Steps

Based on the first sample of programs assessed in 2011-12, there is evidence to suggest that ERS scores increase as STAR level increases, although the sample only represents a small portion of the population of Start with STARS, STAR 1 and STAR 2 programs. Further data is needed to confirm the positive correlation between STAR level and scores. The

sample size was also insufficient to determine strengths and weaknesses of programs at the lower STAR levels. The Environment Quality Investigation Project is an ongoing study that will continue to randomly select programs at the STAR 1 and STAR 2 levels for an ERS assessment. For 2012-13, 155 programs have been selected for participation. In order to

achieve the best results, OCDEL and the PA Key are targeting a minimum of 50 participants, with a preference for 75. As more data is collected, analyses of item level scores for strengths and weaknesses will be conducted as well as monitoring trends in scores over time.