

SUMMARY OF SIGNIFICANT RESULTS FOR THE CARE ABOUT CHILDCARE VALIDATION PROJECT

Project Leaders: Alexander Fronk, MA & Ann Austin, Ph.D.

Graduate Students: Jacob Esplin, Brionne Thompson, & Lori Loesch

Utah State University

2015

*Funding for CCPDI is provided by the Child Care and Development Fund through the Office of Child Care and Utah State University, College of Education & Human Services, Department of Family Consumer and Human Development*

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**Summary of Significant Results for the Care About Childcare Validation Project**

Project Leaders: Alexander Fronk, MA & Ann Austin, Ph.D.

Participating Graduate Students: Jacob Esplin, Brionne Thompson, & Lori Loesch

**Introduction**

This report provides the Office of Child Care with significant research findings from the Care About Childcare Validation Study. We express our thanks to the Office of Child Care for the invaluable input and support which we have received from the outset of this project. We would like to especially thank Colleen Fitzgerald for her efforts in training research observers and otherwise advancing this validation project.

A total of 58 centers were visited during 2014 and 2015; due to the difficulty of getting appointments with large centers that were low in the percentage of the children that were subsidized, we cut short active enrollment in the research near the end of January, 2015. Researchers visited fifteen centers from each group (high capacity, high subsidy; high capacity, low subsidy; low capacity, high subsidy; low capacity, high subsidy), the exception being the high capacity, low subsidy centers. The refusal rate for each group is presented in Table 1.

Table 1  
*Refusals rates.*

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	<b>Refusals on first contact</b>	<b>Refusals after first agreeing to participate</b>	<b>Total refusals to date</b>
<b>High number enrolled and High percent subsidized</b>	5	1	6
<b>High number enrolled and Low percent subsidized</b>	8	4	12
<b>Low number enrolled and high percent subsidized</b>	5	0	5
<b>Low number enrolled and low percent subsidized</b>	5	1	6
	23	6	29
<b>TOTAL</b>			

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In spite of one group having twice the numbers of refusals than the others, it is not beyond what we might expect by chance (Chi square test). There is a danger of selection bias, however.

### **Research questions**

1. How do the self-assessed quality indicators relate to ECERS items, subscale scores and overall ECERS scores?
2. How do the overall CAC scores relate to the overall ECERS-R scores?
3. How do CAC indicators predicted by the ECERS-R correlate with actual reported ECERS indicators?
4. How do the center demographics correlate with self-assessed and observed measures of quality?
5. What is the implementation climate; that is, how receptive is the center staff to CAC?

**(RQ1) Relationship between individual CAC indicators and ECERS-R total scores**

The following subsections describe the significant differences between centers with any given indicator and centers without that indicator. The first section describes differences for all of the observed centers; the second for CAC-participating centers only.

**Individual CAC indicators and ECERS-R total scores: all centers (N = 58)**

Table 2 contains the positive significant differences in means between centers with the listed CAC indicator and all other centers observed, including centers that do not participate in CAC. (The  $p$ -value is the likelihood that the results are due to chance; e.g.  $p=0.02$  indicates that the means are so consistently different that only twice out of 100 tests would we see these same results by chance).

Table 2

*CAC indicators related to significantly different ECERS-R total scores (n=58).*

<b>Criteria Number and ID number</b>	<b>Indicator Description</b>	<b><math>p</math></b>	<b>Mean ECERS-R total score for centers with the indicator</b>	<b>Mean ECERS-R total score for centers without the indicator</b>
<b>HS1- 193</b>	Program has a curriculum that promotes good health practices (n=4)	0.02	4.30	3.45
<b>IE1-140</b>	Each classroom offers at least 3 different activity/learning centers that are accessible simultaneously throughout the day (n=2)	0.04	4.54	3.47
<b>IE2-144</b>	Each classroom offers an additional two or more activity/learning centers that are accessible simultaneously throughout the day (n=2)	0.04	4.54	3.47
<b>IE3-290</b>	Activity/learning centers are available at least two hours a day (n=3)	0.03	4.37	3.46
<b>IE4-291</b>	Activity/learning centers are available for an additional one or two hours per day (n=3)	0.03	4.37	3.46
<b>IE18-164</b>	There is at least one child height sink in each room for hand washing (n=4)	0.01	4.37	3.44
<b>F14-45</b>	Program conducts an enrollment orientation meeting for new families (n=6)	0.01	4.21	3.42
<b>F15-47</b>	Family conferences are held at least twice a year (n=7)	0.01	4.13	3.42
<b>F110-56</b>	Photos of the children and their families are displayed in appropriate spaces (n=2)	0.04	4.53	3.47
<b>AD1-24</b>	Program has a signed contract with each family (n=15)	0.04	3.83	3.39
<b>AD9-35</b>	Director has an Early Childhood or related Bachelor's Degree (n=9)	0.01	4.09	3.40
<b>IE16-158</b>	The program uses sound reducing materials in classrooms to reduce the noise level (n=2)	0.02	2.38	3.54

According to independent t-tests between centers reporting the indicator and centers not reporting the indicator, only one indicator was related to lower child-care quality (IE16-158, "The program uses sound reducing materials in classrooms to reduce the noise level"). We include this finding only because it is of interest to OCC; however, it should be interpreted with the greatest of caution as it is likely significant by chance. This result is based on only two centers reporting this criteria and, having done 112 t-tests (one for each center-based early childhood indicator), we would expect some chance results. There were also indications that one of the centers with this indicator may be somewhat atypical.

For each individual CAC indicator, scores on individual ECERS-R items and subscales were compared for centers with and without the CAC indicator. The significant results for those CAC indicators that were significantly related to higher ECERS-R scores are presented in Appendix A, breaking down in what way these centers achieved higher ECERS-R scores.

**Individual CAC indicators and ECERS-R total scores: centers participating in CAC**

Table 3 summarizes all significant differences in means between centers that had the indicated CAC indicator and all other centers visited that also participate in CAC but did not report the listed indicators (all participating centers, n=29):

Table 3

*CAC indicators related to higher ECERS-R total scores for centers participating in CAC (n=29).*

<b>Criteria Number and ID number</b>	<b>Indicator Description</b>	<b>P</b>	<b>Mean ECERS-R total score for centers with the indicator</b>	<b>Mean ECERS-R total score for centers without the indicator</b>
<b>HS1-193</b>	Program has a curriculum that promotes good health practices (n=4)	0.03	4.29	3.52
<b>IE3-290</b>	Activity/learning centers are available at least two hours a day (n=3)	0.05	4.37	3.54
<b>IE4-291</b>	Activity/learning centers are available for an additional one or two hours per day (n=3)	0.05	4.37	3.54
<b>IE18-164</b>	There is at least one child height sink in each room for hand washing (n=4)	0.02	4.37	3.51
<b>F14-45</b>	Program conducts an enrollment orientation meeting for new families (n=6)	0.02	4.21	3.47
<b>F15-47</b>	Family conferences are held at least twice a year (n=7)	0.02	4.13	3.47
<b>AD9-35</b>	Director has an Early Childhood or related Bachelor's Degree (n=9)	0.02	4.09	3.42

For this study, an accepted significance level was set at  $p < .05$ . Table 4 presents findings that approached, but did not attain, significance for the independent samples  $t$ - test comparing centers participating in CAC (n=29):

Table 4

*CAC indicators approaching significance for centers participating in CAC.*

<b>Criteria Number and ID number</b>	<b>Indicator Description</b>	<b>P</b>	<b>Mean ECERS-R total score for centers with the indicator</b>	<b>Mean ECERS-R total score for centers without the indicator</b>
<b>IE1-140</b>	Each classroom offers at least 3 different activity/learning centers that are accessible simultaneously throughout the day (n=)	0.051	4.54	3.56
<b>IE2-144</b>	Each classroom offers an additional two or more activity/learning centers that are accessible simultaneously throughout the day	0.051	4.54	3.56
<b>FI10-56</b>	Photos of the children and their families are displayed in appropriate spaces	0.052	4.53	3.57

Before and after controlling for participation in CAC, Tables 2-4 demonstrate that almost all significant relationships between ECERS-R total scores and individual CAC indicators remain statistically significant or approach significance. An exception to this is IE 16, “The program uses sound reducing materials in classrooms to reduce the noise level,” reinforcing the assessment that the significant relationship was due to chance.



**(RQ2) Overall CAC ranking and number of CAC items compared to ECERS-R total scores**

Of the five levels in the internal CAC ranking system based on number of CAC criteria reported by a center, only three levels are represented in the centers visited (level 1 N=19 centers, level 2 N=7, level 3 N=2). There was no significant relationship between CAC levels and ECERS-R scores. There is, however, a correlation between the levels and the director’s level of education attained (the director’s education was an ordinal scale as follows: 1-High School, 2-Some College, 3-Associate’s Degree, 4-Bachelor’s Degree, 5-Graduate Degree; this correlation continued to be visible even after removing the third level from analysis).

(The  $\rho$ -value [Greek letter rho, not the English letter ‘p’] and the  $r$ -value denote the “strength” of the relationship and how the two scores “move” relative to each other. A positive  $r$ -value or  $\rho$ -value is indicated by the absence of a minus sign and indicates that as one score increases, the other score increases. Below, the correlation between “The inner CAC ranking system” and “Director education” means that directors who have a higher educational degrees tend to be managing centers that are higher in the CAC ranking system. A negative  $r$ -value with a “-” indicates that as the score on one variable increases, the score on the other variable decreases. In Table 8 in the next section, the negative correlation for  $r$  between “The inner CAC ranking system” means that as the percentage of subsidy children in a center increases as the center’s overall ECERS-R score decreases.)

Table 5  
*Relationship between CAC ranking and director education.*

	Director education	
<b>The inner CAC ranking system</b>	$\rho$	0.56
	$p$	0.03
	<b>N</b>	15.00

Given that only two centers were in Level 3, that level was removed from the analysis and an independent samples t-test used to compare Levels 1 & 2 only. There were no significant differences between the first two levels and differences in ECERS-R scores. However, there were differences between the two levels in two teacher’s age variables collected through teacher surveys (Table 4; since multiple centers had more than one observed teacher, these were divided into several variables, namely, the age of the youngest teacher, the age of the oldest teacher, average teacher age, and sum of the teachers’ ages). (The  $t$ -value and the degrees of freedom [df] determine the  $p$ -value.)

Table 6  
*Significant differences in demographic means between the first two CAC levels.*

	$t$	df	$p$	Level 1 mean	Level 2 mean
<b>The age of the youngest teacher</b>	2.22	17	0.04	31.43	23.6
<b>The average age of teachers</b>	2.76	17	0.01	34.68	25.48

In summary, Level 2 centers typically had younger teachers and more educated directors. The relationship between demographic factors and the number of CAC indicators is explored more fully under research question 4.

**(RQ 3) The relationship between predicted and observed CAC indicators based on ECER-R scores**

There was a significant difference between the indicators predicted by the ECERS-R and the actual number of the CAC criteria predictable by the ECERS-R. In other words, centers consistently reported fewer CAC quality indicators than they could considering what they had at their centers. This was true for both participating and non-participating centers.

Table 7

*Difference between what criteria the center had achieved and reported and what they could report.*

	<i>t</i>	<i>df</i>	<i>p</i>	<b>Total predicted</b>	<b>Actual total</b>
<b>All centers</b>	14.58	57	0.00	23.02	4.24
<b>Participating centers only</b>	9.14	28	0.00	24.45	8.48

There is no significant correlation between predicted number of CAC items and the actual number of CAC quality indicators attained (all centers,  $p=0.13$ ; CAC participating centers only,  $p=0.31$ ). It appears that the number of CAC indicators that a center can achieve is not the determining factor in the number of CAC indicators for which a center actually applies.

There appears to be a non-significant trend in that higher subsidy centers are reporting more indicators proportional to the number that they can apply for than low subsidy centers; this non-significant trend is mentioned because it may explain some of the findings about the relationship between the ECERS-R and CAC indicators and is supported by the CAC rating discussed below (RQ4).

**(RQ4) Center demographics compared to ECERS-R and number of CAC indicators**

The next two subsections describe significant relationships found between demographic variables and ECERS-R total scores and number of CAC indicators reported. The first discusses general significant relationships, the second specifically focuses on the difference between high subsidy and low subsidy centers.

**Demographic variables: directors, teachers, and subsidy percentage**

Tables 8 and 9 contain the significant Pearson correlations among demographic variables, ECERS-R total scores, and total number of CAC indicators (only one teacher variable was related to higher ECERS-R scores). Tables 10 through 11 present the director demographic variables significantly related to ECERS-R total scores (t-test); Tables 12 through 13 present the two director variables that are linked with significant differences in CAC indicators.

Table 8

*Correlations between center and director characteristics and ECERS-R and CAC criteria.*

		Percentage of capacity that is subsidy children	Length of time as a director in previous job	Director's Career Ladder
Total ECERS-R score	<i>r</i>	-0.47	0.41	0.38
	<i>p</i>	0.00	0.02	0.02
	<i>n</i>	58	35	35

Table 9

*Correlations between teacher characteristics compared to ECERS-R and CAC criteria.*

		Years in childcare for most experienced teacher	Years in childcare for least experienced teacher	Average years of experience for all teachers	Age of youngest teacher	Average age of teachers	Teachers with bachelor degree (%)
Total ECERS-R score	<i>r</i>						0.42
	<i>p</i>						0.01
	<i>n</i>						36
Average total number of CAC items	<i>r</i>	-0.37	-0.41	-0.45	-0.41	-0.4	
	<i>p</i>	0.02	0.01	0.01	0.01	0.02	
	<i>n</i>	36	36	36	36	36	

Table 10

*Mean ECERS-R difference between centers employing a director with previous director experience and those not.*

	<i>t</i>	<i>df</i>	<i>p</i>	Not a director previously	Director previously
Total ECERS-R mean score	-4.36	33	0.00	3.26	4.08

Table 11

*Director's 2 year or 4 year college degree in early childhood education/child development.*

	<i>t</i>	<i>df</i>	<i>p</i>	No related undergraduate degree	Undergraduate degree
<b>Total ECERS-R mean score</b>	-2.08	33	.046	3.53	4.02

Table 12

*Director previously employed in childcare.*

	<i>t</i>	<i>df</i>	<i>p</i>	Director not previously in childcare	Director previously in childcare
<b>Average total number of CAC items</b>	-4.37	32.99	0.00	3.23	3.72

Table 13

*Director's graduate degree in early childhood education or child development.*

	<i>t</i>	<i>df</i>	<i>p</i>	No related graduate degree	Graduate degree
<b>Average total number of CAC items</b>	-2.33	32	0.03	3.62	4.53

Thus, length of director's previous experience as a director, Career Ladder, undergraduate degree in a relevant field, and teachers with higher education generally work in centers with higher ECERS-R scores; a higher percentage of subsidy children are in centers with lower ECERS-R scores.

Higher CAC indicator counts are related to director education in general, but especially if the director has a graduate degree in a related field as well as general experience in child care; lower numbers of reported CAC indicators are related to greater teacher age and experience as well as the percentage of subsidy children at the center.

Some of the correlations remained/became significant after removing all centers that do not participate in CAC:

Table 14

*Correlations between center characteristics and ECERS-R and CAC criteria for participating centers.*

		Percentage of the capacity that is subsidy children	Percentage of the teachers with a bachelor degree
<b>Total</b>	<i>r</i>	-0.62	0.59
<b>ECERS-</b>	<i>p</i>	0.00	0.01
<b>R score</b>	<i>n</i>	29	21

Table 15

*Significant correlations between center characteristics and ECERS-R and CAC criteria for participating centers; Spearman's rho.*

		The center category by capacity and subsidy percentage	Previous ly a director	Director's level of education obtained	The teacher(s) have an undergraduat e degree.
<b>Average</b>	<i>ρ</i>			.57	
<b>total number</b>	<i>p</i>			0.01	
<b>of CAC items</b>	<i>n</i>			19	
<b>Total score</b>	<i>ρ</i>	.377	.693		.475
	<i>p</i>	0.04	0.00		0.03
	<i>n</i>	29	19		21

The relationship between poorer quality and larger concentrations of subsidy children is robust and consistent in multiple analyses: the greater the percentage of subsidy children, the lower the ECERS-R total scores.

Director education predicts higher numbers of CAC quality indicators; teacher bachelor degree continued to predict higher ECERS-R total scores.

### High and low subsidy center ECERS-R scores and demographics

The four groups created during the sampling process were not significantly different in most of the variables measured (e.g., director age, ethnicity, teacher and director education, Career Ladder, children enrolled, etc.). However, they were significantly different in ECERS-R scores, ECERS-R subscale scores, and the percentage of the observed teachers with a bachelor's degree (Table 16; the *F*-value represents the size of the difference between the means).

Table 16

*Differences between groups: ECERS-R total score, subscale scores, and teacher bachelor degree.*

	<i>F</i>	<i>p</i>	High Capacity High Subsidy mean	High Capacity Low Subsidy mean	Low Capacity High Subsidy mean	Low Capacity Low Subsidy mean	Total mean
<b>Space and Furnishings subscale</b>	4.85	0.00	3.66	4.31	3.25	4.17	3.83
<b>Personal Care Routines subscale</b>	4.07	0.01	2.43	3.11	2.53	3.36	2.85
<b>Language-Reasoning subscale</b>	3.89	0.01	2.88	3.67	2.92	3.72	3.28
<b>Activities subscale</b>	4.68	0.01	2.91	3.50	2.60	3.35	3.08
<b>Interaction subscale</b>	2.92	0.04	3.58	4.31	3.72	4.69	4.07
<b>Parents and Staff subscale</b>	10.53	0.00	3.77	4.22	3.49	4.72	4.04
<b>Total score</b>	7.96	0.00	3.23	3.88	3.04	3.92	3.50
<b>Percentage of the teachers with a bachelor degree</b>	3.30	0.03	0.00	0.35	0.00	0.37	0.22

These results indicate that higher ECERS-R total scores and the presence of teachers with bachelor’s degrees are significantly more typical of low subsidy centers than high subsidy centers; they are not four distinctive groups, but rather two groups divided by the percentage of the children at their center who are subsidy children. To explore this relationship further, the capacity was removed as a grouping variable and high subsidy centers were compared to low subsidy centers (Table 17).

Table 17

*Statistically significant differences between grouped high subsidy and low subsidy centers.*

	<i>p</i>	Mean for low subsidy centers	Mean for high subsidy centers
<b>Total score</b>	0.00	3.90	3.13
<b>Space and Furnishings subscale</b>	0.00	4.23	3.45
<b>Personal Care Routines subscale</b>	0.00	3.24	2.48
<b>Language-Reasoning subscale</b>	0.00	3.70	2.90
<b>Activities subscale</b>	0.00	3.42	2.76
<b>Interaction subscale</b>	0.01	4.51	3.65
<b>Program Structure subscale</b>	0.03	4.35	3.70
<b>Parents and Staff subscale</b>	0.00	4.49	3.63
<b>Percentage of the teachers with a bachelor degree</b>	0.00	0.36	0.00
<b>The sum of the ages of all teachers.</b>	0.03	59.41	39.86

Even with capacity combined, high subsidy centers are still significantly lower on the total ECERS-R score as well as most of the subscales scores. A minority of teachers in the low subsidy centers had bachelor's degrees while no high subsidy centers had teachers with bachelor's degrees.

The combined age for all teachers at a center was also significantly higher for lower subsidy centers; other age variables were not significant, including the average age of the observed teachers surveyed.



**(RQ5) General acceptance of CAC among directors and teachers**

There was no statistically significant difference between how the participating and non-participating centers rated the importance of CAC to their programs, despite a non-significant trend for the participating centers to generally rate it as more important (teachers' rating,  $p=0.24$ ; directors' rating,  $p=0.55$ ). However, there were a few significant correlations with other demographic variables, presenting a consistent picture of the groups most supportive of CAC.

Considering only participating centers, a higher score on the director CAC acceptance measure was correlated to higher numbers of CAC items. Higher director ratings of CAC were related to lower scores on the Activities and Interaction subscales; higher teacher ratings of CAC were related to low scores on the Program Structure Subscales (Table 18). This is possibly explained by the finding that higher director CAC acceptance ratings are related to higher subsidy percentages.

Again considering only participating centers, the director's rating of CAC was positively related to a higher number of CAC indicators and a higher average years of experience in previous jobs for teachers (Table 19). Higher teacher ratings were related to shorter experience at the current job for the senior teacher and the average and sum of all teachers. Higher teacher ratings were related to shorter combined years of experience for all teachers.

For all centers, the director acceptance measure was negatively correlated to the Language-Reasoning and Interaction Subscales, but positively related to subsidy percentage. The teacher's rating was positively related to the junior teacher's years of experience in a related job, but negatively related to measures of time in the current teaching position.

Table 18

*CAC participating only: Relation between CAC acceptance measure, CAC, and ECERS-R.*

		<b>Teacher Report: CAC Acceptance</b>	<b>Director Report: CAC Acceptance</b>
<b>Total # of</b>	<i>r</i>		0.51
<b>CAC Items</b>	<i>p</i>		0.03
	<i>n</i>		18.00
<b>Activities</b>	<i>r</i>		-0.53
<b>Subscale</b>	<i>p</i>		0.02
	<i>n</i>		18.00
<b>Interaction</b>	<i>r</i>		-0.48
<b>Subscale</b>	<i>p</i>		0.04
	<i>n</i>		18.00
<b>Program</b>	<i>r</i>	-0.51	
<b>Structure</b>	<i>p</i>	0.03	
<b>Subscale</b>	<i>n</i>	19.00	

Table 19

*CAC participating centers: Demographic information compared to CAC acceptance.*

		<b>Teacher Report: CAC Acceptance</b>	<b>Director Report: CAC Acceptance</b>
<b>Percentage of the capacity that is subsidy children</b>	<i>r</i>		0.50
	<i>p</i>		0.03
	<i>n</i>		18.00
<b>Sum of the combined years of experience in the child care field for all teachers.</b>	<i>r</i>	-0.57	
	<i>p</i>	0.01	
	<i>n</i>	19.00	
<b>Years in the current teaching position of the teacher that has been in that center as a teacher the longest.</b>	<i>r</i>	-0.75	
	<i>p</i>	0.00	
	<i>n</i>	19.00	
<b>Average years in the current teaching position for all teachers</b>	<i>r</i>	-0.66	
	<i>p</i>	0.00	
	<i>n</i>	19.00	
<b>Sum of the years in the current teaching position for all teachers.</b>	<i>r</i>	-0.79	
	<i>p</i>	0.00	
	<i>n</i>	19.00	
<b>The average number of years that the teachers taught in a previous position.</b>	<i>r</i>		0.52
	<i>p</i>		0.05
	<i>n</i>		15.00
<b>The Career Ladder level of the teacher with the highest Career Ladder level.</b>	<i>r</i>	-0.46	
	<i>p</i>	0.05	
	<i>n</i>	19.00	

Table 20

*All centers: Relation between CAC acceptance measure, CAC, and ECERS-R.*

		<b>Director's CAC acceptance</b>
<b>Language-Reasoning subscale</b>	<i>r</i>	-0.37
	<i>p</i>	0.03
	<i>n</i>	34.00
<b>Interaction subscale</b>	<i>r</i>	-0.45
	<i>p</i>	0.01
	<i>n</i>	34.00

Table 21

*All centers: Demographic information compared to CAC acceptance.*

		CAC acceptance measure according to teachers	CAC acceptance measure according to directors
Percentage of the capacity that is subsidy children	<i>r</i> <i>p</i> <i>n</i>		0.38 0.02 34.00
Sum of the combined years of experience in the child care field for all teachers.	<i>r</i> <i>p</i> <i>n</i>	-0.36 0.04 33.00	
Years in other related jobs of the teacher with the least previous job experience.	<i>r</i> <i>p</i> <i>n</i>	0.40 0.02 33.00	
Years in the current teaching position of the teacher that has been in that center as a teacher the longest.	<i>r</i> <i>p</i> <i>n</i>	-0.64 0.00 33.00	
Years in the current teaching position of the teacher that has been in that center as a teacher the shortest.	<i>r</i> <i>p</i> <i>n</i>	-0.40 0.02 33.00	
Average years in the current teaching position for all teachers	<i>r</i> <i>p</i> <i>n</i>	-0.55 0.00 33.00	
Sum of the years in the current teaching position for all teachers.	<i>r</i> <i>p</i> <i>n</i>	-0.71 0.00 33.00	

## Discussion

### Limitations

There are potentially confounding effects of selection bias, since more large capacity, low subsidy centers declined to participate than any other group. In addition to this, many teachers and directors did not return their surveys, thus compromising information regarding demographics and CAC implementation.

Only centers in northern Utah with early childhood classrooms were visited; not only does this exclude other geographic areas in Utah, but also excluded are home child care, infant/toddler care, and school-age care, all of which are served by CAC.

### **(RQ1) How do the self-assessed quality indicators relate to ECERS items, subscale scores and overall ECERS scores?**

There are a number of CAC indicators that are significantly related to quality as measured on the ECERS-R. These mostly fall into three broad categories: health practices, parent involvement, and the availability of interest centers. Since hand-washing and the availability of interest centers have a great influence on the final ECERS-R scores, this is not unexpected. However, in examining the correlations between the health-related indicators and the sub-scales and ECERS items (Table 22 and Table 27, Appendix A), it is clear these indicators are more related to general quality than can be explained by the importance of hand-washing to the ECERS-R scores. Another indicator, whether or not the director has a Bachelor's degree, also is related to higher quality, and there is support from the data that centers managed by directors with a Bachelor's degree are different in a number of ways. It can be stated with some confidence that these indicators are predictive of higher ECERS-R scores for Utah center child care along the Wasatch Front.

### **(RQ2) How do the overall CAC scores relate to the overall ECERS-R scores?**

ECERS-R was not related to total number of CAC indicators that the center had applied for and received; this is possibly connected to the discovery that the number of CAC indicators a center reports is not related to the number of CAC indicators for which a center is qualified to apply.

### **(RQ3) How do CAC indicators predicted by the ECERS-R correlate with actual reported ECERS indicators?**

There is no significant relationship between the number of indicators for which a center can apply and the number for which the center successfully applies.

### **(RQ4) How do the center demographics correlate with self-assessed and observed measures of quality?**

Center demographics are more predictive of the number of CAC indicators than center quality. More educated directors and teachers and less experienced, younger teachers are more likely to participate in CAC, and centers report more indicators as the director's formal education increases. This might be explained by a reluctance to use technology. This has implications for the implementation of CAC in the future.

As for ECERS-R scores, higher quality centers typically had directors with previous experience as a director, directors with higher Career Ladder, directors with undergraduate degree in a relevant field, and teachers with higher education. One of the most persistent and strongest findings is that centers decreased in quality as the percentage of subsidy children increased.

### **(RQ5) What is the implementation climate; that is, how receptive is the center staff to CAC?**

Generally, most responses seemed fairly positive in regards to how important CAC was to the center regardless of whether the response was from a participating center or a non-participating center. Acceptance of the program does not appear to be the driving force behind participation in CAC.

It also appears that higher subsidy centers are more likely to rate CAC as more important to their program; they claim to be using the CAC rating system more often than lower subsidy centers. This is supported by non-significant differences between the high and low subsidy centers in the CAC indicators that they could apply for and the number of CAC indicators that they do apply for. This might in part explain why there is no significant relationship between the number of CAC indicators that a center has and ECERS-R total scores: high subsidy centers, which are of lower quality, are making more of an effort to implement CAC.

### **Recommendations**

For CAC to more accurately represent quality, certain groups need greater encouragement or support. Since many of the variables predicting participation in CAC and actual number of CAC indicators applied for are related to teacher experience and age, the problem could be due to a reluctance to use technology and/or resistance to change from staff well-established in their career. These difficulties could be mitigated by greater on-site support for child care providers in submitting material given that on-site coaching is vital to proper implementation in the implementation science literature (e.g. Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). Some CAC personnel already have made an effort to bring portable scanners and cameras to assist providers in uploading their information; this practice could improve participation and accurate representation of quality.

Although another potential difficulty is that centers are not hearing about CAC, as some teachers indicated on their surveys (Appendix B), there are already a number of efforts to publicize CAC that should address this.

As this research project only looked at a portion of all Utah childcare programs, we recommend expanding this research to professional home childcare and infant/toddler care center care. Also, as the centers randomly selected for this research project only have a minimum of the quality indicators available, we recommend an additional sub-research project using an ad-hoc sample of centers from CAC levels 3, 4, and 5.

### **Reference**

Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M., & Wallace, F. (2005). *Implementation Research: A synthesis of the literature* (FMHI #231). Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network.

## Appendix A

## ECERS-R item and subscale scores compared by individual CAC quality indicators

Individual indicators were compared to scores on individual ECERS-R items and subscale scores. Presented here are the significant differences between centers with the criteria and those without the criteria that significantly related to ECERS-R total scores. These tables present specifically how the centers with the given criteria achieved higher ECERS-R total scores.

It appears that CAC indicators that predicted higher ECERS-R total scores were generally statistically related to subscales that were also logically related (e.g. hand-washing indicators are related to the Personal Care Routines subscale). However, CAC quality indicators were also related to subscales and items that were not directly associated with the aspect of quality that the indicator is supposed to represent; they are related to higher quality in many areas. Thus centers with higher ECERS-R total scores tend to have higher scores in multiple quality areas.

Table 22

*Program has a curriculum that promotes good health practices.*

	<i>t</i>	<i>df</i>	<i>p</i>	Center does not have the indicator	Center has the indicator
<b>Child-related display</b>	-2.71	56.00	0.01	3.17	5.00
<b>Greeting/departing</b>	-5.90	9.29	0.00	4.78	6.75
<b>Books &amp; pictures</b>	-2.37	56.00	0.02	3.52	4.75
<b>Encouraging children to communicate</b>	-4.69	53.00	0.00	3.07	4.00
<b>Sand/water</b>	-2.14	56.00	0.04	3.63	5.50
<b>Dramatic play</b>	-1.74	56.00	0.09	3.61	4.75
<b>Discipline</b>	-4.73	53.00	0.00	4.02	5.00
<b>Free play</b>	-2.36	56.00	0.02	3.93	5.50
<b>Space and Furnishings subscale</b>	-2.22	56.00	0.03	3.76	4.78
<b>Personal Care Routines subscale</b>	-2.87	56.00	0.01	2.76	4.04

<b>Interaction subscale</b>	-4.19	19.18	0.00	4.01	4.90
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Table 23

*Each classroom offers an additional two or more activity/learning centers that are accessible simultaneously throughout the day.*

	<b>t</b>	<b>df</b>	<b>p</b>	<b>Center does not have the indicator</b>	<b>Center has the indicator</b>
<b>Furnishings for relaxation</b>	-2.65	56.00	0.01	3.46	6.50
<b>Greeting/departing</b>	-9.87	55.00	0.00	4.84	7.00
<b>Nap/rest</b>	-2.13	53.00	0.04	2.58	5.00
<b>Safety practices</b>	-2.05	56.00	0.05	3.23	5.50
<b>Books &amp; pictures</b>	-2.77	56.00	0.01	3.54	5.50
<b>Art</b>	-2.09	56.00	0.04	3.20	5.00
<b>Space and Furnishings subscale</b>	-2.54	56.00	0.01	3.77	5.38
<b>Personal Care Routines subscale</b>	-3.23	56.00	0.00	2.78	4.75

Table 24

*Activity/learning centers are available at least two hours a day.*

	<i>t</i>	<i>df</i>	<i>p</i>	Center does not have the indicator	Center has the indicator
<b>Furnishings for relaxation</b>	-2.31	56.00	0.02	4.42	5.67
<b>Gross motor equipment</b>	-6.55	5.15	0.00	3.89	6.67
<b>Greeting/departing</b>	-10.03	54.00	0.00	4.80	7.00
<b>Nap/rest</b>	-2.27	53.00	0.03	2.56	4.67
<b>Books &amp; pictures</b>	-2.49	56.00	0.02	3.53	5.00
<b>Encouraging children to communicate</b>	-4.67	54.00	0.00	3.09	4.00
<b>Use of TV, video, and/or computers</b>	7.69	54.00	0.00	1.18	0.00
<b>General supervision of children</b>	-5.05	54.00	0.00	3.89	5.00
<b>Discipline</b>	-4.72	54.00	0.00	4.04	5.00
<b>Staff-child interactions</b>	-4.62	5.74	0.00	4.65	6.67
<b>Space and Furnishings subscale</b>	-2.55	56.00	0.01	3.76	5.09
<b>Personal Care Routines subscale</b>	-3.23	56.00	0.00	2.76	4.39
<b>Interaction subscale</b>	-5.91	16.24	0.00	4.01	5.20



Table 25

*Activity/learning centers are available for an additional one or two hours per day.*

	<i>t</i>	<i>df</i>	<i>p</i>	Center does not have the indicator	Center has the indicator
<b>Furnishings for relaxation</b>	-2.31	56.00	0.02	4.42	5.67
<b>Gross motor equipment</b>	-6.55	5.15	0.00	3.89	6.67
<b>Greeting/departing</b>	-10.03	54.00	0.00	4.80	7.00
<b>Nap/rest</b>	-2.27	53.00	0.03	2.56	4.67
<b>Books &amp; pictures</b>	-2.49	56.00	0.02	3.53	5.00
<b>Encouraging children to communicate</b>	-4.67	54.00	0.00	3.09	4.00
<b>Use of TV, video, and/or computers</b>	7.69	54.00	0.00	1.18	0.00
<b>General supervision of children</b>	-5.05	54.00	0.00	3.89	5.00
<b>Discipline</b>	-4.72	54.00	0.00	4.04	5.00
<b>Staff-child interactions</b>	-4.62	5.74	0.00	4.65	6.67
<b>Space and Furnishings subscale</b>	-2.55	56.00	0.01	3.76	5.09
<b>Personal Care Routines subscale</b>	-3.23	56.00	0.00	2.76	4.39
<b>Interaction subscale</b>	-5.91	16.24	0.00	4.01	5.20

Table 26

*There is at least one child height sink in each room for hand washing.*

	<i>t</i>	<i>df</i>	<i>p</i>	Center does not have the indicator	Center has the indicator
<b>Space for gross motor</b>	-7.35	9.01	0.00	3.69	6.50
<b>Safety practices</b>	-2.68	56.00	0.01	3.17	5.25
<b>Encouraging children to communicate</b>	-4.69	53.00	0.00	3.07	4.00
<b>Blocks</b>	-6.43	53.00	0.00	2.89	4.00
<b>Sand/water</b>	-7.95	9.49	0.00	3.57	6.25
<b>Opportunities for professional growth</b>	-2.29	56.00	0.03	4.19	5.25
<b>Space and Furnishings subscale</b>	-2.30	56.00	0.02	3.76	4.81
<b>Personal Care Routines subscale</b>	-2.75	56.00	0.01	2.76	4.00
<b>Activities subscale</b>	-2.13	56.00	0.04	3.02	3.86

Table 27

*Program conducts an enrollment orientation meeting for new families.*

	<i>t</i>	<i>df</i>	<i>p</i>	Center does not have the indicator	Center has the indicator
<b>Room arrangement</b>	-2.09	56.00	0.04	3.35	4.17
<b>Space for gross motor</b>	-2.25	56.00	0.03	3.50	4.17
<b>Books &amp; pictures</b>	-2.31	56.00	0.02	3.50	4.50
<b>Blocks</b>	-2.20	56.00	0.03	2.85	4.00
<b>Sand/water</b>	-2.16	56.00	0.04	3.60	5.17
<b>Interactions among children</b>	-3.10	56.00	0.00	3.77	5.33
<b>Group time</b>	-2.20	56.00	0.03	4.17	5.83
<b>Space and Furnishings subscale</b>	-2.33	56.00	0.02	3.74	4.63
<b>Activities subscale</b>	-2.68	56.00	0.01	2.99	3.85
<b>Interaction subscale</b>	-2.02	56.00	0.05	3.96	5.00
<b>Program Structure subscale</b>	-2.11	56.00	0.04	3.91	4.92

Table 28

*Family conferences are held at least twice a year.*

	<i>t</i>	<i>df</i>	<i>p</i>	Center does not have the indicator	Center has the indicator
<b>Indoor space</b>	-2.07	56.00	0.04	4.24	5.43
<b>Space for gross motor</b>	-2.12	56.00	0.04	3.69	5.29
<b>Gross motor equipment</b>	-2.03	56.00	0.05	3.84	5.43
<b>Sand/water</b>	-2.87	56.00	0.01	3.53	5.43
<b>Free play</b>	-2.10	56.00	0.04	3.90	5.00
<b>Provisions for parents</b>	-2.68	56.00	0.01	3.69	4.86
<b>Staff interaction and cooperation</b>	-2.16	31.00	0.04	4.50	5.71
<b>Supervision and evaluation of staff</b>	-2.12	56.00	0.04	3.65	4.86
<b>Opportunities for professional growth</b>	-3.40	56.00	0.00	4.12	5.29
<b>Space and Furnishings subscale</b>	-2.31	56.00	0.02	3.73	4.55
<b>Parents and Staff subscale</b>	-4.76	56.00	0.00	3.89	5.18

Table 29

*Photos of the children and their families are displayed in appropriate spaces.*

	<i>t</i>	<i>df</i>	<i>p</i>	Center does not have the indicator	Center has the indicator
<b>Indoor space</b>	-2.70	56.00	0.01	4.29	7.00
<b>Space for gross motor</b>	-12.95	55.00	0.00	3.77	7.00
<b>Nap/rest</b>	-2.13	53.00	0.04	2.58	5.00
<b>Safety practices</b>	-2.05	56.00	0.05	3.23	5.50
<b>Using language to develop reasoning skills</b>	3.87	55.00	0.00	2.64	2.00
<b>Staff-child interactions</b>	-8.38	55.00	0.00	4.68	7.00
<b>Space and Furnishings subscale</b>	-2.10	56.00	0.04	3.78	5.13
<b>Personal Care Routines subscale</b>	-2.74	56.00	0.01	2.79	4.50
<b>Parents and Staff subscale</b>	-2.02	56.00	0.05	4.01	5.13

Table 30

*Program has a signed contract with each family.*


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	<i>t</i>	<i>df</i>	<i>p</i>	Center does not have the indicator	Center has the indicator
<b>Gross motor equipment</b>	-2.26	56.00	0.03	3.70	5.00
<b>Toileting/diapering</b>	-2.36	56.00	0.02	1.56	2.47
<b>Books &amp; pictures</b>	-2.06	56.00	0.04	3.44	4.07
<b>Sand/water</b>	-2.06	56.00	0.04	3.49	4.53
<b>Group time</b>	-2.01	56.00	0.05	4.07	5.13
<b>Space and Furnishings subscale</b>	-2.31	56.00	0.02	3.67	4.28
<b>Personal Care Routines subscale</b>	-2.12	56.00	0.04	2.70	3.27

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Table 31

*Director has an early childhood or related bachelor's degree.*

	<i>t</i>	<i>df</i>	<i>p</i>	Center does not have the indicator	Center has the indicator
<b>Indoor space</b>	-2.18	56.00	0.03	4.20	5.33
<b>Space for gross motor</b>	-2.36	56.00	0.02	3.63	5.22
<b>Sand/water</b>	-3.45	56.00	0.00	3.45	5.44
<b>Supervision of gross motor activities</b>	-2.18	55.00	0.03	3.50	4.44
<b>Provisions for parents</b>	-2.51	56.00	0.02	3.67	4.67
<b>Staff interaction and cooperation</b>	-2.89	31.00	0.01	4.40	5.88
<b>Opportunities for professional growth</b>	-3.24	56.00	0.00	4.10	5.11
<b>Space and Furnishings subscale</b>	-2.50	56.00	0.02	3.71	4.50
<b>Interaction subscale</b>	-2.06	56.00	0.04	3.93	4.82
<b>Parents and Staff subscale</b>	-4.36	56.00	0.00	3.88	4.96

Table 32

*The program uses sound reducing materials in classrooms to reduce the noise level.*

	<i>t</i>	<i>df</i>	<i>p</i>	Center does not have the indicator	Center has the indicator
<b>Space for gross motor</b>	7.55	55.00	0.00	3.95	2.00
<b>Greeting/departing</b>	4.22	55.00	0.00	4.95	4.00
<b>Nap/rest</b>	7.81	52.00	0.00	2.74	1.00
<b>Books &amp; pictures</b>	2.30	56.00	0.03	3.66	2.00
<b>Nature/science</b>	8.09	55.00	0.00	2.21	1.00
<b>Math/number</b>	4.49	55.00	0.00	2.66	2.00
<b>Discipline</b>	2.07	56.00	0.04	4.16	2.00
<b>Free play</b>	2.27	56.00	0.03	4.11	2.00
<b>Language-Reasoning subscale</b>	2.41	56.00	0.02	3.34	1.75
<b>Activities subscale</b>	2.13	56.00	0.04	3.12	1.95
<b>Interaction subscale</b>	2.20	56.00	0.03	4.13	2.25



## Appendix B

### Survey Comments

The following are unsolicited comments that teachers and directors provided on the returned surveys. The questionnaire provided a number of statements which the respondents marked as either “True” or “False;” some teachers and directors added comments or questions at the end of the survey or in response to a particular true/false question. If the comment was in response to a particular true/false question, the question has been included in parentheses and bolded.

#### Teacher comments

Is CAC caring about childcare? We care about a complete Environment [*sic*] catering towards the children development [*sic*] in all the fields.

I’ve never heard of CAC.

I don’t know what CAC is.

I like and enjoy and feel it is important so I am trying to help some of the staff.

The teachers would love to learn more 😊

(In response to “**CAC is a top priority at this facility**”)

It is a priority but I Wouldn’t way the top [*sic*].

(In response to “**At this facility, CAC takes a back seat to other projects.**”)

We work on most things equally.

(In response to “**One of this facility’s main goals is to use CAC effectively.**”)

We like CAC’s ideas but have some of our own that differ.

#### Director comments

All quality grants make this a yes but no crossover – CAC is to [*sic*] strict and has rejected all 😞. There was a big push, high importance this is very difficult, every picture has been rejected, for some reason or another. Countless hours wasted. Most of these have been met by 1 or more of the quality grants. Need to cross-ref this.

The CAC website is difficult to use and keep updated. We feel it is important and beneficial – but the time it takes to update our page is too much for our business currently. At some point we will make it a priority; as again, we do see a value in it.

(In response to “**People here really don’t care about the success of CAC.**”)

It’s not that they don’t care, we just don’t use it.

## CAC Research Summary Fronk & Austin Utah State University

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(In response to **“At this facility, there is a big push for people to make the most of CAC.”**)

Maybe a small push?

(In response to **“One of this facility’s main goals is to use CAC effectively.”**)

Quality criteria is too cumbersome. We are NAEYC accredited and I think it should give more weight in the CAC quality criteria

(In response to **“At this facility, there is a big push for people to make the most of CAC.”**)

We want everyone to want this. It has made a huge improvement in our center. We try to encourage the staff not force or push them into it.