



Tennessee's Infant and Toddler Credential **Pilot Evaluation Report**

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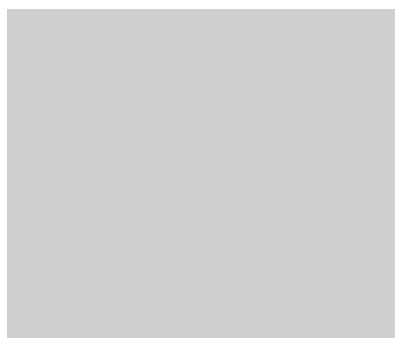
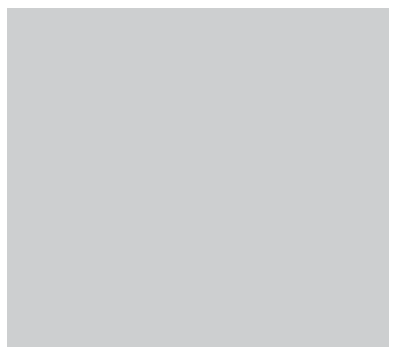


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Acknowledgements

This research was funded by the **Tennessee Department of Human Services**. The conclusions and views presented in this report are those of the author only and not of the study's funders or reviewers.

Special thanks to: **Gail Crawford, Director of Infant/Toddler Services, Tennessee Department of Human Services**, for her individual interest in and support of this project

Joyce Bridges and Karen Wright at Signal Centers, Inc. for the guidance and support on the design of the evaluation, and for the patience and openness to the process of evaluation

Dianne Stetson and Kathie Boling at Zero to Three for their guidance and enthusiasm for the work of Infant/Toddler Specialists throughout the country and especially in Tennessee.

All the Infant and Toddler Specialists for their hard work as data collectors and for sharing their insights into the process.

Cristal Byrne and Marcia Taplin for their assistance and amazing attention to detail in managing the database for this evaluation.

Andres at Collective Designs for the fabulous layout and formatting of this report.

All the **child care providers and administrators** involved in this year's pilot project for their time and effort in completing all the survey instruments, and for so graciously allowing us into their child care programs.



Background

As researchers have discovered increasing links among children's early experiences, early environments and concurrent and future developmental outcomes, there has been a corresponding increase in the number of statewide quality improvement initiatives that target both center and home-based early care and education providers' professional development (Child Trends, 2010). However, most quality enhancement initiatives, and the accompanying research to determine the impact of professional development on child and provider outcomes, are primarily focused on the preschool years (Fiene, 2002). There are very few statewide professional development initiatives exclusively designed for infant and toddler child care providers, and even less research demonstrating the effectiveness of such efforts (Kreader, Ferguson, & Lawrence, 2005b).

Some common professional development strategies for infant and toddler caregivers include community based training, college-credit courses, and one-on-one technical assistance provided by coaches, mentors or consultants (Kreader, Ferguson, & Lawrence, 2005a). Although limited, there is emerging evidence that combinations of these professional development approaches have some merit. For example, center and home-based providers who received community training bearing college credits and technical assistance increased in levels of sensitivity and decreased in levels of detachment (Adams & Buell, 2002). There is also evidence that infant and toddler child care providers who received personalized technical assistance in the form of mentoring and training improved quality in the areas of routines, learning activities, sensitivity, and appropriate discipline (Fiene, 2002).

Another promising systemic approach to lifting the quality of care for infants and toddlers involves the emergence of

Infant and Infant/Toddler (I/T). Specialist Networks, which currently exist in 23 states – including Tennessee (NITCCI, 2010). The Infant/Toddler Specialist Network is a state-based system that coordinates the work of Infant and Toddler Specialists. Funding for these networks comes from a variety of sources, but most states allocate federal Child Care and Development Fund (CCDF) infant/toddler targeted funds to finance the Network. The overall goal of the Infant/Toddler Specialist Network is to improve caregiver practices and the overall quality of each infant and toddler's developmental experience (NITCCI, 2010).

One of the most notable aspects of a state's Infant/Toddler Specialist Network is the support of Infant and Toddler Credential Programs. Most Infant and Toddler Credential Programs are designed to formally recognize those practitioners who display a specialized knowledge of infant and toddler development, the partnership of caregivers with families of the child in their care, and professional practice based on respect for the individual, the system and themselves. In many states around the country Infant and Toddler Credential Programs are quickly becoming integral to states' professional development pathway models. Establishing system-wide career paths for early care and education caregivers is key to enhancing quality of care for infants and toddlers. To date, there are 21 states that have developed a statewide infant and toddler certificate and/or credential program, and six states that are in the process of developing their credential programs – including Tennessee (Boling & Stetson, 2010). However there is no evaluation or outcome data to date, which demonstrates whether the credential programs are having an impact on providers' practices and quality of care (Boling & Stetson, 2010). Tennessee is the first state to offer a performance outcome evaluation of its infant/toddler credential program.

Tennessee's Infant and Toddler Credential Pilot Project

Tennessee's Infant and Toddler Credential as proposed in the pilot project is designed to acknowledge the work of licensed infant and toddler caregivers in providing the highest quality care environments for Tennessee's children. The objectives proposed in Tennessee's Infant and Toddler Credential are to increase the infant and toddler caregiver's knowledge of:

- Child development theory and practice;
- Relationship-based models of care and education;
- The importance of quality interactions to infant mental health;
- Individual curriculum design;
- The role of family and community in quality infant and toddler care.

Adult learners will choose from a variety of educational options including academic college coursework, community based training, and portfolio development. Each participant will also be entitled to 40 hours of coaching (e.g., one-on-one technical assistance) provided by highly trained Infant and Toddler Specialists. The proposed credential will be administered through multi-tiered cohorts, and will be designed to be completed on an individualized schedule based on the tier of credential sought and each participant's individual capabilities.

Basic candidate qualifications:

Infant and toddler caregivers who wish to pursue the Tennessee Infant and Toddler Credential must be employed for six months and in a classroom or family group home with infant and toddler children. Verification of employment is required upon application. Each candidate is required to submit three letters of recommendation. Finally, each candidate is required to submit a written statement of personal commitment. All academic coursework submitted for credit must have been completed within the last four years and must be approved by the Infant and Toddler Credential Review Team. [Key Elements of Learning:](#)



Tennessee's proposed Infant and Toddler Credential is built upon delivering training and technical assistance with a focus on five Key Elements that must be present in quality infant and toddler classrooms. (See [Appendix A for more detailed information.](#))

1. A safe and healthy classroom environment.
2. A developmentally appropriate classroom environment and curriculum.
3. An increased understanding of child development.
4. A respect for the role that family and community plays in the life of a child.
5. An increased understanding of the social and emotional needs of infants and toddlers.

A Multi-Tiered Approach:

Eighteen states with an Infant and Toddler Credential offer only a single level credential. There are three states, which offer multi-level credentials, which range from 2 to 5 levels. Tennessee's proposed program would offer credentials for 4 levels. The detailed requirements and training components proposed for each level, or tier, are highlighted in Appendix B.

Strong State Partnerships:

Tennessee's Infant and Toddler Credential is a result of strong partnerships between the Tennessee Department of Human Services, the Tennessee Department of Health, Maternal and Child Health Section, Tennessee's Child Care Resource and Referral Network, Tennessee's Early Childhood Training Alliance (TECTA), and Tennessee's Outstanding Providers Supported Through Available Resources (TOPSTAR).

Purpose of Evaluation

The purpose of this evaluation was to discover whether Tennessee’s Infant and Toddler Credential Pilot Project was successful in reaching its desired outcomes – that is, whether there were demonstrable changes in participants’ beliefs, practices with children and environmental quality. Specific research questions are as follows:

PROVIDER DATA

Research Question 1: What is the description of providers’ beliefs and quality of care at the beginning of the project?

Research Question 2: Were providers’ beliefs and quality of care enhanced from the beginning to the end of the project?

Research Question 3A: Are outcome scores at the end of the project associated with providers’ background characteristics, beliefs, and quality of care?

Research Question 3B: Is an increase in outcomes associated with providers’ background characteristics, beliefs, and quality of care?

Research Question 4: What were participants’ experiences and ratings of the credential project?

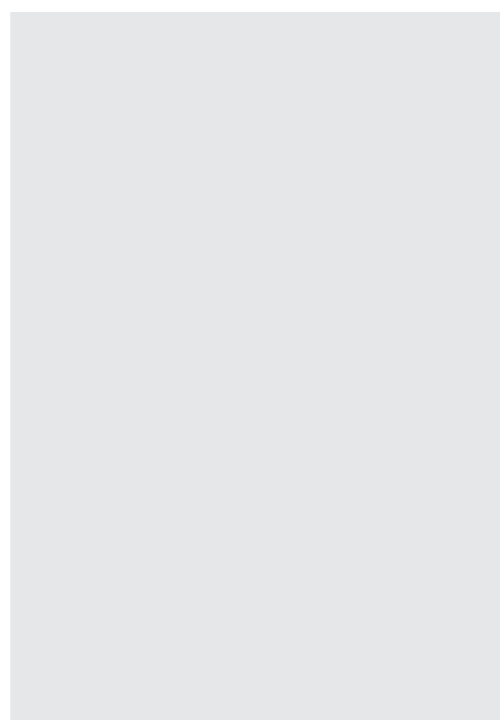
Research Question 5: What are the associations among participants’ ratings of the IT Credential Program and changes in beliefs and quality of care?

COACH / IT SPECIALIST DATA

Research Question 1: Did coaches’ ratings of their knowledge and skills change from the beginning to the end of the program?

Research Question 2: Were coaches’ ratings of their professional comfort and support from providers’ administrators associated with scores on the key outcome variables?

Research Question 3: How did coaches rate their experience with the Tennessee Infant and Toddler Credential Pilot Project?



Evaluation Design

This evaluation is primarily a summative outcome evaluation, which used performance measures based on the project developers’ theory of change and child care research on effective professional development for infant and toddler caregivers. The purpose of this evaluation is three-fold: first and foremost, the goal is to determine whether the Tennessee Infant and Toddler Credential Pilot Project met its stated objectives and outcomes. Second, the evaluation is designed to provide insight and feedback to the program’s developers as they move forward to bring the program to scale. Third, the research on effectiveness of infant/toddler child care professional development initiatives is sparse. Findings from this evaluation will likely point to many other research questions that researchers and future evaluations can explore in order to push the field toward a deeper understanding of professional development models, infant toddler credentialing, and ultimately, quality and enhanced child outcomes.

Limitations of the Data

There are several serious limitations in this evaluation. We cannot, with ultimate confidence, state that the observed changes are a direct result of the Tennessee Infant and Toddler Credential Pilot Project. Limitations are listed below:

- The first and most significant limitation to attribution is that almost every child care provider in the sample had multiple, simultaneous quality improvement efforts underway during the evaluation year. Child care agencies regulated by the Tennessee Department of Human Services are eligible to participate in the TN Star Quality Program, PSAM (Provider Self Assessment and Mentoring), TOPSTAR (a mentoring program for family child care providers), and financial support for academic coursework through TECTA. In this environment, it is extremely difficult to sort out the impact of any given intervention on a program. Participants were asked to report other quality improvement activities underway within their programs. This data was accounted for in the analysis. It does not appear that the quality improvement efforts are redundant. They all, however, may contribute to gains in teacher self-efficacy, environmental quality, or to sensitive teacher-child interactions

- This is a non-experimental design, with the same group of providers serving as their own comparison group through the use of a pre-post design. There is no randomized control group, and participants were not randomly recruited, which makes causal and generalizable statements harder to ascertain than when using randomized recruitment and an experimental design.

- There is a self-selection bias insofar as the Tennessee Infant and Toddler Credential Pilot Project was a service for which administrators and home-based providers volunteered. It may be that seeking out this type of experience is a characteristic of a higher quality program.

- Questionnaire responses are self-reported and not verified by observation. One assumes a response bias on the part of caregivers and administrators to provide socially desirable responses and present oneself and one’s program in the best possible light.

- The services provided by the Tennessee Infant and Toddler Credential Pilot Project coaches were designed to include many activities (e.g., one-on-one classroom assistance, small group meetings, trainings, technical assistance via phone conversations, etc.) The hallmark of good coaching is tailoring the mix and intensity of those activities to the unique needs of the individual child care program. Consequently, the intervention was not identical in all sites.

Description of Participants

Providers

Sixty-six (66) child care providers participated in this statewide evaluation. Eleven providers dropped out of the program – leaving 55 providers at the final data collection time point. The majority of providers worked in center-based programs (86%; n = 57) the rest worked in family or group child care settings (14%; n = 9).¹ All 66 providers were female. All except one provider spoke English as their first language. The remaining characteristics of this sample are detailed in the tables below. Please note that due to missing data, not all total percentages equal 100%.

Table 1: Provider Background Characteristics

Tier and Region	Frequency	Percent
Tier 1 East TN	29	44%
Tier 2 Middle TN	16	24%
Tier 3 West TN	15	23%
Tier 4 Middle TN (w/BA)	6	9%

Ethnicity	Frequency	Percent
White	47	71%
African American	17	26%
Multi-Racial	1	2%

¹Many of the providers who dropped out of the pilot project had been severely affected by extreme weather and flooding

Teaching Position	Frequency	Percent
Administrative	8	12%
Lead Teacher	47	72%
Assistant Teacher	5	8%
Floater	2	3%

Highest Education Level	Frequency	Percent
High School / GED	21	32%
Some child development college courses	3	5%
CDA	14	21%
AA	12	19%
BA or higher	15	23%

Table 2: Experience in the Field

Category	Minimum	Maximum	Mean	SD
How long have you worked in this classroom or how long have you been a family child care provider ? "in years"	.10	32.00	6.56	8.07
How many hours per week do you work in this classroom or family child care home ? "in years"	19.00	60.00	37.54	8.00
How long have you been in the child care field ? "in years"	.50	34.00	11.92	9.02
How long have you worked at this home or child care agency ? "in years"	.50	32.50	5.94	6.25

Table 3: Characteristics of Children in Participants' Classrooms

Age Range of Children	Frequency	Percent
0-12 months	13	24%
13-24 months	14	25%
0-24 months	2	3%
24-36 months	13	24%
0-36 months	13	24%

Classroom Ethnic Composition	Frequency	Percent
Predominantly White	46	74%
50% White / 50% Non-White	5	8%
Predominantly African American	5	8%
Predominantly Latino	4	6%

Language other than English Spoken in Classroom	Frequency	Percent
Spanish	13	19%
Spanish + Other	3	5%
Other	1	1.5%

Children with Special Needs in Classroom	Frequency	Percent
YES	12	17%
NO	46	70%



Table 4: Characteristics of Participants' Child Care Programs

Auspice	Frequency	Percent
For profit (independent)	19	43.9%
Non-profit	25	37.9%
For profit (school)	1	1.5%
Faith-based	2	3.0%

Is your center accredited by a national body?	Frequency	Percent
YES	23	39%
NO	36	61%

Is your center accredited by NAEYC?	Frequency	Percent
YES	12	20%
NO	47	78%

Is your center involved with another quality enhancement program?	Frequency	Percent
YES	22	43%
NO	29	57%

Have you worked with a mentor or coach previously?	Frequency	Percent
YES	27	44%
NO	34	56%

Coaches / Specialists

Ten (10) Infant and Toddler Specialists participated as “coaches” in this pilot program. One (1) coach left the program. All the coaches in this program were female, and all of them had previous and ongoing experience as employees of the statewide Child Care Resource and Referral Network and Signal Centers, Inc. delivering training and other technical assistance to child care providers. Additional background characteristics are displayed in the tables below.

Table 5: Coaches’ Background Characteristics

Ethnicity	Frequency	Percent
White	8	80%
African American	2	20%

Education Level	Frequency	Percent
Bachelor’s degree (BA / BS)	8	80%
Master’s degree (MA / MS / M Ed)	2	20%

Reported Areas of Expertise	Frequency	Percent
Professional networking	4	40%
Staff development	7	70%
Professional development pathways	5	50%
Quality program enhancement	8	80%
Curriculum development	9	90%
Relationships (teacher-child)	10	100%
Relationships (staff-staff)	9	90%
Family sensitive caregiving	8	80%
Enhancing cultural awareness	5	50%
Advocacy and community organizing	5	50%
Administrative practices	2	20%

Table 6: Coaches’ Professional Experience

How many years have you...	Minimum	Maximum	Mean	SD
Provided coaching, consultation, and training to any group of professionals?	1.50	30.00	11.05	7.56
Provided coaching, consultation, and training to early childhood professionals?	1.50	30.00	9.75	7.94
Worked in the field of early childhood – including training, coaching, consultation and direct service?	6.00	35.00	18.10	10.44

Procedures

Evaluators collected data from child care providers, their administrators and the coaches. Participating providers completed a background questionnaire and pre and post self-assessments. They consented to a pre and post observation to collect data on caregiver-child interactions. They also consented to our use of their standardized quality environment score (e.g., ITERS-R and FDCRS) supplied by the Tennessee Department of Human Services. The baseline data was collected within 3 weeks of enrollment into the credential program. At the end of the pilot project, providers also completed a feedback survey, which included written feedback on the Tennessee Infant and Toddler Credential Pilot Project. Final survey and observational data was collected one to two months after completion of the program. At the end of the program we also asked providers’ administrators to complete a short feedback survey.

Coaches completed pre and post self-assessments and provided ratings and written feedback on their experiences with the Tennessee Infant and Toddler Credential Pilot Project. Coaches logged their Tennessee Infant and Toddler Credential Pilot Project activity hours via their agency’s administrative database procedures.



This evaluation used a pre/post design. Data collection consisted of standardized self-assessments and observations of quality and provider-child interaction.

Data Collection and Instrumentation

Data were collected through questionnaires, observations, consultant activity tracking logs, and discussion groups. A summary of the instruments used and the information collected is included below as Table 7.

Table 7: Overview of Evaluation Measures*

Instrument	Citation	Constructs Measured	Respondent	When Collected
Provider Background Questionnaire	(Signal Centers; Shivers, 2006)	Demographics Classroom data Child care program data	Child care provider	Baseline
Organizational Climate	(Adapted from Bloom, 1977; Carter & Curtis, 1998)	Respondent's perception of various dimensions of organizational quality (e.g., professional commitment; collegiality; staff communication; visioning; etc.) (10 items)	Child care provider	Baseline
Teacher Self-Efficacy Scale	(Adapted from Lamorey & Wilcox, 2005)	Respondent's perception of ability to effectuate change in the classroom (personal self-efficacy; general self-efficacy) (20 items)	Child care provider	Baseline; Completion of program
The Parent-Caregiver Relationship Scale	(Elicker, Noppe, Noppe, & Fortner-Wood, 1997)	Parents' and caregivers' perceptions of one another and of their relationship (35 items)	Child care provider; Parents from provider's classroom	Baseline; Completion of program
Infant Toddler Environmental Rating Scale - Revised	(Harms, Cryer, & Clifford, 2006)	Global environmental quality	Observation in provider's classroom	Baseline; Completion of program
Family Day Care Rating Scale	(Harms & Clifford, 1989)	Global environmental quality for Family Child Care homes	Observation in provider's home	Baseline; Completion of program
Caregiver Interaction Scale (Arnett)	(Arnett, 1987)	Widely used observational tool capturing provider's global relationships with children in class (26 items - 3 subscales: sensitivity; harsh; detached)	Observation in provider's home	Baseline; Completion of program
Feedback Survey	(Adapted from Parsons & Myers, 1984; Erchul, 1987)	Provider's perception of how well program met its objectives; perceived benefits; effectiveness of program, and ratings of experience with coach. Includes open-ended questions.	Child care provider	Baseline; Completion of program
Director Feedback Survey	(Adapted from Parsons & Myers, 1984; Shivers & Wright, 2010)	Administrator's perception of how well program met its objectives; effectiveness of program, and ratings of experience with coach. Includes 1 open-ended question.	Provider's administrator	Baseline; Completion of program
Coach Background Questionnaire	(Shivers, 2006)	Demographics; professional experience; areas of expertise; perceptions of nature of the work; job crafting, etc.	Coach	Baseline; Completion of program
Knowledge and Skill Inventory for Coach	(Buisse & Wesley, 2005; Adapted from Klein & Kontos, 1993)	Coaches rate their perceived levels of skill and knowledge in different areas (e.g., systems change, communication skills, collaborative problem solving, etc.)	Coach	Baseline; Completion of program
Coach Professional Comfort Scales	(Adapted from an article by Buysee & Wesley, 2001)	For each provider, coaches rate their level of "professional comfort" on several dimensions of provider, classroom, and program characteristics (e.g., teacher knowledge; ratios; group size; access to resources). Coach also rates level of administrator's support of provider while in the credential program. (12 items for each provider)	Coach	Baseline; Completion of program

*For more detailed information about individual measures, please contact the author.

Analyses

Items in each of the data sets I were initially examined for accuracy and consistency. Problematic data in the electronic files were assessed against the original hardcopy forms. Summary scales were created for the standardized instruments (e.g., PCRS, Arnett). Where applicable, measures were merged across data sets (e.g., ITERS-R, Arnett, director questionnaires, parent questionnaires, coach scales and aggregated coach activity per provider).

Analyses followed standard methods in applied social research. Item and scale frequencies were generated along with relevant summary statistics (counts, percentiles, means, medians and dispersion indexes). Bivariate procedures were selected based on levels of measurement. For example, with continuous measures Pearson's moment correlations were performed; t-tests were used with two-category predictors and interval-level dependent variables. Where relevant, coded themes from open-ended, qualitative responses gleaned from surveys and focus groups were integrated throughout the results section to highlight quantitative findings. Finally, based on a hypothesized theory of change, multivariate regression models were created and performed.

Training and Reliability

This evaluation included the use of ITERS-R and FDCRS scores as scored by assessors who are employees of the Tennessee Department of Human Services. To ensure that assessors are using the scales reliably and consistently, each assessor's reliability on a scale is scheduled to be checked every sixth, twelfth, or eighteenth time the assessor uses each scale (depending upon their level of reliability). An assessor's reliability is calculated by averaging the trained assessor's three most recent reliability scores. If that average is 85 percent or higher, the assessor is considered to be reliable. Assessors and others who lose their reliability on a scale (average falls below 85 percent) are not able to conduct observations until their reliability is regained.

The key outcomes we examined in this evaluation included: environmental quality, provider-child interaction, teacher self-efficacy, parent-caregiver relationships, and organizational quality.



Results

SECTION I: PROVIDER DATA

Research Question 1:

What is the description of providers' beliefs and quality at the beginning of the project?

Conditions of Care

Providers' conditions of care was primarily measured using the Organizational Climate Scale (Adapted from Bloom, 1977; Carter & Curtis, 1998), which taps into provider's perceptions of working conditions at her child care program. Based on our reading of the literature on organizational quality, we hypothesized that providers' perceptions of organizational climate would impact other outcomes such as global quality, relationships with parents, and interactions with children (Hansen, 2006). Margie Carter, a well-known trainer for child care administrators, quotes Paula Jorde Bloom as stating:

"Perceptions are powerful regulators of behavior that can influence teachers' level of commitment to a center. In fact, people's perceptions of events may be more important than reality because individuals act according to their interpretation of events."

	N	Minimum	Maximum	Mean	Std. Deviation
Collegiality	57	1.00	3.00	2.7018	.49875
Professional growth	59	1.00	3.00	2.7627	.46753
Supervisor Support	57	1.00	3.00	2.6842	.53977
Clarity	59	1.00	3.00	2.6525	.55905
Reward system	58	1.00	3.00	2.4483	.65353
Decision making	58	2.00	3.00	2.5690	.49955
Goal consensus	57	1.00	3.00	2.6491	.55069
Task orientation	58	1.00	3.00	2.6780	.53950
Physical setting	59	1.00	3.00	2.5431	.66415
Innovation	58	1.00	3.00	2.6379	.51973

Participants rated their program on these ten dimensions (1 = poor; 2 = mediocre; 3 = very well). Reward system was the dimension that got the lowest ratings from providers. Collegiality got one of the highest ratings. These findings are consistent with other studies that have used this climate scale (Jorde-Bloom, 1998; Iutovich et al., 2001).

Beliefs – Self-Efficacy

We used an adapted version of Wilcox and Lamorey's Teacher Self-Efficacy Scale (2005). Bandura defines self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (1977, p.3). There is a rich literature on K-12 teacher self-efficacy, which demonstrates that efficacious teachers bring about more positive change in their teaching practices and students' outcomes (Armor et al., 1976; Berman et al., 1977). Furthermore, teacher self-efficacy is reported to be malleable as a result of professional development interventions (Mullholland & Wallace, 2001). Although there is less literature about self-efficacy with early care and education professionals, researchers are starting to include this variable in their analyses as the field moves towards professional development models that include one-on-one technical assistance approaches (Deaver, J,

2005; Green et al., 2006). Another one of our hypotheses was that teachers who believe in their ability to implement change have the motivation to adapt their teaching practices, and ultimately improve the quality of care they provide.

The scale we used included 20 items in a 7-point Likert format. Providers rated the extent to which they agreed or disagreed with the 20 statements (1 = strongly disagree; 7 = strongly agree). Since this original scale was used with early interventionists and not infant toddler child care providers, we conducted a principal component factor analysis to see how the items hung together. A varimax rotation was performed, revealing a three-component solution, which explained 57% of the variance. Table 9 presents how each of the items loaded onto the factors.

Table 9: Teacher Self-Efficacy Factors

Table 6: Coaches' Professional Experience	Flexible, Collaborative, Personal Efficacy Maximum	Personal Efficacy	General Efficacy
I am able to figure out if a task was at the correct difficulty level for children.	.766		
I can collaborate well with team members from other classrooms.	.755		
If a child is having trouble with a task, I would be able to adjust to his/her developmental level.	.739		
I feel confident that I have the necessary skills to implement change.	.628	-.410	
If a child did not remember information, I would know how to increase their interest next time.	.523		
I have enough training to deal with problems that I encounter.	.458		
When a child does better than expected, it is b/c I gave extra effort.		.782	
When a child shows improvement, it is b/c I have been effective in teaching.		.756	
If a child masters a skill quickly it is b/c I knew the necessary steps to teach it.		.655	
Even a teacher with good skills may not reach many children.		.484	
The amount a child will learn is due to family background.			.743
Genetic predisposition/growth has more influence than a skilled teacher.			.741
A teacher is limited in what she can achieve b/c child's home environment			.739
My efforts are not effective due to child's background/lack of resources.			.684
I can get through to even the most challenging children.			-.499

These three factors map on to dimensions of self-efficacy described in the literature (Wilcox & Lamorey, 2005). We hypothesized that providers who scored higher on the Personal Self-Efficacy factor, and especially those who scored higher on the Collaborative, Flexible Self-Efficacy factor would have higher quality and relationship scores at Time 1 than those who scored higher

on the General Self-Efficacy factor. We also hypothesized that those providers who scored higher on the General Self-Efficacy (e.g., "I can't make a difference because children and families come from deficient backgrounds") factor at Time 1 would demonstrate greater gains as a result of participating in the credential pilot.

Beliefs – Parent-Caregiver Relationships

We used the Parent-Caregiver Relationship Scale (Elicker, Noppe, Noppe, & Fortner-Wood, 1997) to assess the relationships that comprise infants and toddlers’ “system” of early care (Elicker et al., 1997). This measure was specifically developed for infant and toddler child care settings, and it is also one of the few parent-caregiver measures that is dyadic – meaning that both caregiver and parent complete this 35-item instrument with a 5-point Likert format. Scores on the PCRS have been correlated with child care teacher satisfaction and parents’ satisfaction with child care (Elicker et al., 1997). We calculated a total score

for the scale as well as three sub-scales that are consistent with the PCRS dimensions described in the literature (Elicker et al., 1997). These subscales include: Trust/Confidence (alpha = .85); Collaboration (alpha = .80); and Affiliation (alpha = .48). While we did not conceptualize this construct as a key outcome variable, we hypothesized that it might be associated with self-efficacy and a possible predictor for the quality of provider-child relationships. Mean scores are presented in Table 10 below.

Table 10: Provider Caregiver Relationship Scores at Baseline

Providers’ Responses	Minimum	Maximum	Mean	Std. Deviation
Overall score	2.66	4.97	4.03	.53
Trust/Confidence	2.69	5.00	4.09	.58
Collaboration	2.57	5.00	4.02	.54
Affiliation	2.00	5.00	3.80	.68
Parents’ Responses	Minimum	Maximum	Mean	Std. Deviation
Overall score	3.74	4.93	4.61	.27
Trust/Confidence	3.64	5.00	4.77	.27
Collaboration	3.77	5.00	4.58	.30
Affiliation	3.40	4.93	4.23	.37

Interestingly, parents’ ratings of their relationship with their provider is significantly higher than providers’ ratings (p < .001).

Environmental Quality

The Infant-Toddler Environment Rating Scale - Revised (ITERS-R; Harms, Cryer, & Clifford, 2003) is a widely used instrument in research on child care quality, and is one of the key outcome measures used in this study. The recent funding initiatives in the United States and to a lesser extent in Canada to motivate improvements in the child care experience (Zellman, Perlman, Le, & Setodji, 2008), has turned this measure into a high-stakes instrument – that is, scores on instruments such as the ITERS-R may increase or decrease a facility’s funding or access to certain resources. The ITERS-R is used with center-based programs that serve children up to 30 months of age. Thirty-two items of this scale are used in Tennessee’s ongoing statewide assessments, and each item is rated on a seven-point scale with a score of 1 indicating “inadequate” practices and 7 indicating “excellent” practices.

The Family Day Care Rating Scale (FDCRS) is a similarly widely used observational tool designed for use in child care programs in family and group homes. It consists of 33 items, and each item is rated on a seven-point scale with a score of 1 indicating “inadequate” practices and 7 indicating “excellent” practices. Thirty-two items of this scale are used in Tennessee’s ongoing statewide assessments. Table 11 below presents the baseline scores for the ITERS-R and FDCRS. It also displays comparison scores from other state and national contexts. Finally, the table lists the other variables and constructs that were significantly associated with baseline environment quality scores.

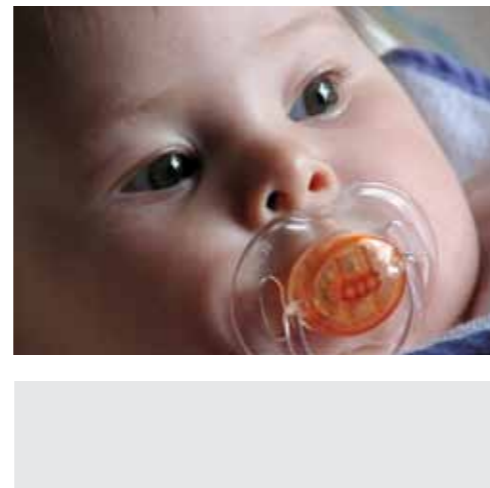


Table 11: ITERS-R and FDCRS Baseline Scores

	TN IT Credential Pilot Sample	Statewide TN Sample 2009*	National Sample	Other variables associated w/ quality baseline scores	Correlation Score
ITERS-R average scores	5.17	4.38*	3.28+	Less likely to endorse beliefs in Generalized Self-Efficacy Factor (Children are deficient)	-.54**
				More years in ECE field	.51**
FDCRS average scores	5.73	4.83*	3.39#	More years in child care program	.44**
				More years in current classroom	.45**
				Previous experience working with a mentor	.42**
				Program currently involved in another quality enhancement project	.33

*Data from Tennessee Report Card and Star Quality Program – Year 8 Annual Report

+ Data from Scarr, Eisenberg, Deater-Deckard (1994)

Data from Quality in Family Child Care and Relative Care (Kontos, Howes, Shinn, Galinsky, 1995)

Provider-Child Interactions

Another one of the key outcome measures for this evaluation is the Caregiver Interaction Scale (CIS/Arnett5). The CIS (Arnett, 1989) was completed for each caregiver observed. Three composite measures were yielded based on previous research findings (Kontos et al., 1995; Whitebook et al., 1990) three scores: sensitivity (e.g., warm, attentive, and engaged); harshness (e.g., critical, threatens children, and punitive); and detachment (e.g., low levels of interaction, interest, and supervision). Scores from this instrument have been found to predict caregiver’s involvement with children and children’s language development and attachment security (Whitebook, Howes, & Phillips, 1989).

The Arnett5 is a modification of the original Arnett (1989) measure. The original Arnett scoring includes: not at all/never (0%) = 1; few instances/ somewhat (1-30%) = 2; many instances/quite a bit (about

50%) = 3; consistently/very much (60- 100%) = 4. The modified version, while retaining the same indicators and descriptors, was expanded to consist of a 5-point scale to allow for more variability among the data. The modified Arnett scoring includes: not at all/never (0%) = 1; few instances (1-25%) = 2; some instances (26 – 50%) = 3; many instances (51 – 75%) = 4; and consistently (76+%) = 5 (Fiene & Carl, 2006). This instrument provides an observation of the behavior of caregivers in their interactions with children. Therefore, there is a balance between the rating scales and interaction scale so that both environment and caregiver’s interactions are noted. Table 12 below presents the baseline scores for CIS. It also displays comparison scores from other state and national contexts. Finally, the table lists the other evaluation variables and constructs that were significantly associated with baseline CIS scores.

Table 12: Caregiver Interaction Scores at Baseline

	TN IT Credential Sample	National Sample	Other variables associated with CIS baseline scores	Correlation Score
Sensitivity	3.82	3.20	Higher provider education	.36**
			Less likely to endorse beliefs in Generalized Self-Efficacy Factor (Children are deficient)	-.33*
			More years working in agency	.30*
Harshness*	1.89	1.6	Previous experience working with a mentor	.34*
			More likely to endorse beliefs in Generalized Self-Efficacy Factor (Children are deficient)	.45**
Detachment*	2.98	1.5	Longer hours per week working with children	.32*

+Data from the Cost, Quality, and Outcomes Study (CQO) (1997)

*Lower scores on harshness and detachment subscales are more optimal for children

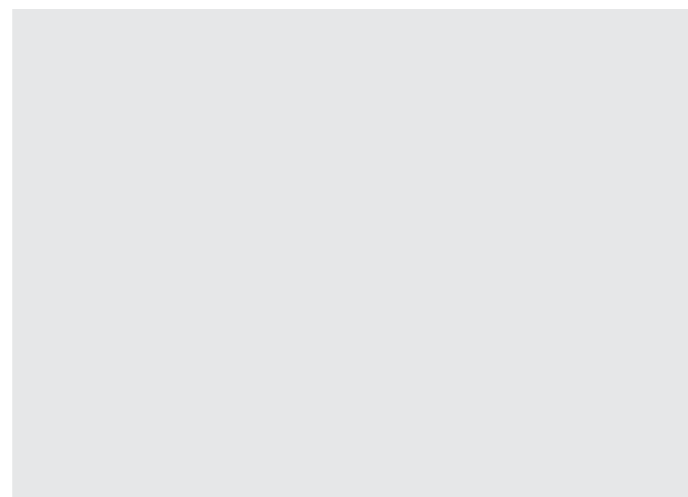
Research Question 2:

Were providers' beliefs and quality of care enhanced from the beginning to the end of the project?

There were significant increases on each of the key outcome measures: ITERS-R/FDCRS ($p < .10$); Sensitivity (CIS) ($p < .001$). And there were statistically significant decreases on the Harshness CIS subscale ($p < .05$). In addition, providers' ratings of self-efficacy increased ($p < .10$) and providers' ratings of their relationships with parents in their program increased ($p < .001$) – especially on the dimensions of Trust and Collaboration. Table 13 lists each of the paired mean scores for the key variables used in the analysis.

Table 13: T-tests Paired Samples - Baseline and End of Program Score Comparisons

Key Variables	Mean Score Time 1	Mean Score Time 2SD
ITERS-R	5.17+	5.48+
FDCRS	5.73	6.01
Sensitivity (CIS)	3.82***	4.45***
Harshness (CIS)	1.89*	1.66*
Detachment (CIS)	2.98	3.06
General Efficacy (Deficient children and families) (TSES)	2.85	2.70
Personal Efficacy (Flexible, Collaborative) (TSES)	6.00+	6.18+
Parent Caregiver Relationship Scale – Provider report	4.02***	4.28***
Parent Caregiver Relationship Scale – Parent report	4.64	4.64
Organizational Climate	2.66	2.70



Research Question 3A:

Are outcome scores at Time 2 associated with providers' background characteristics, beliefs, and quality of care?

In our analysis of the baseline scores, we discovered that many of the key variables of interest were associated with various background provider characteristics (e.g., education, experience). Similarly, we hypothesized that the scores at the end of the program (Time 2) would also be associated with various background

variables. For example, we expected that higher global quality scores at the end of the project would be associated with factors like education, organizational climate and perhaps self-efficacy. Table 14 lists each of the key variables and the other variables that are significantly correlated with each of them.

Table 14: Associations among Key Variables at Time 2 and background Characteristics

Key Variables Time 2	Background Characteristics	Conditions of Care	Beliefs	Key Outcomes
ITERS-R / FDCRS ²	Worked with mentor previously (.33*)			Sensitivity (.49**) Detached (-.41**)
	Education (.42**) Years in field (.41**) Worked with mentor previously (.34*)		General Self-Efficacy (Deficient children and families) (-.45**)	Harshness (-.48**)
Harshness (CIS)				Sensitivity (-.48**)
Detachment (CIS)				ITERS-R (-.41**)
General Efficacy (Deficient children and families) (TSES)				Sensitivity (-.45**)
Personal Efficacy (Flexible, Collaborative) (TSES)	Ethnicity (African American providers) (.40**)			
Parent Caregiver Relationship Scale – Provider report	Ethnicity (White providers) (-.31*)	Organizational Climate (.41**)		
Organizational Climate			Parent Caregiver Relationship – Caregiver report (.41**)	

* $p < .05$; ** $p < .01$

The key highlights from this analysis are not too surprising. They indicate that providers with more education and who have worked in the early care and education field longer, tended to score higher on sensitivity at Time 2. Providers who reported working with a mentor during a previous project (e.g., PSAM) also scored higher on sensitivity and had higher environment rating scores at Time 2.

In addition, providers who were more likely to endorse the beliefs in the General Self-Efficacy factor (children are deficient) at Time 2 were also more likely to score lower on sensitivity at Time 2. The General Self-Efficacy factor included items like: “a child’s genetic predisposition for growth and development has more influence than a highly skilled teacher.” Finally, providers who rated their relationships with parents as more positive at Time 2 tended to rate their programs higher on organizational climate at Time 2.

²Due to a small sample size, scores for ITERS-R and FDCRS were often analyzed as a single construct, which we called “environment quality”

Research Question 3B:

Is an increase in outcomes associated with providers' background characteristics, beliefs, and quality of care?

This next analysis differs only slightly from the previous analysis in that instead of only examining associations among scores at Time 2, we now examine associations among the change in scores from Time 1 to Time 2. For example, we hypothesized that providers who demonstrate greater change in their sensitivity scores from Time 1 to Time 2 might be more likely to report higher ratings of organizational climate. We thought it important to analyze the change in scores because it is likely that providers who had higher Time 1 scores might also have higher Time 2 scores by default.

We can learn more by examining the extent of change and which variables are associated with change.

Our first round of analyses indicated that providers who scored lower on the key outcome variables (sensitivity, harshness, detachment, and ITERS-R/FDCRS) at Time 1 showed higher rates of improvement at Time 2 ($p < .001$ for all variables). Table 15 lists associations among key variables and other variables of interest.

Table 15: Associations among Change in Key Variables"

Change in Key Variables	Background Characteristics	Conditions of Care	Beliefs	Key Outcomes
ITERS-R / FDCRS - increase	Fewer years in current classroom (-.38) Fewer years working in the ECE field (-.36)		Higher rating of General Efficacy (Deficient children and families) at Time 1 (.36*)	
Sensitivity (CIS) - increase			Lower rating of General Efficacy (Deficient children and families) at Time 1 (-.63**)	
Harshness (CIS) - decrease			Lower rating of General Efficacy (Deficient children and families) at Time 1 (-.40*)	
Detachment (CIS) - decrease				
General Efficacy (Deficient children and families) (TSES) decrease	NAEYC Accredited program (.38**)			
Personal Efficacy (Flexible, Collaborative) (TSES) increase		Increase in Organizational Climate (.29*)	Increase in Parent-Caregiver Relationships – caregiver report (.28*)	
Parent Caregiver Relation increaseship Scale – Provider report increase	Previously worked with a mentor (.30*)			
Parent Caregiver Relationship Scale – Parent report increase				

* $p < .05$; ** $p < .01$

This analysis highlights the unique role that providers' self-efficacy beliefs play in how much change happened between Time 1 and Time 2 data collection. Providers who endorsed the General Self-Efficacy (children are deficient) items at the beginning of the program were more likely to have greater increases in their quality environment rating scores (ITERS-R/FDCRS). Conversely, providers who were less likely to endorse the General Self-Efficacy items at the beginning of the program were more likely to increase their sensitivity scores and decrease their harshness scores.

Additionally, providers who gained more of a Personal Self-Efficacy (flexible, collaborative) attitude during the course of the program

also increased in their regard for their relationships with parents and increased their ratings of their program's organizational climate.

Lastly, there were several background characteristic variables that also were associated with a change in key constructs. Providers who have been in the field for fewer years had higher increases in their environment quality scores (ITERS-R/FDCRS). Providers who worked in NAEYC accredited programs were more likely to decrease in General Self-Efficacy (children are deficient) attitudes during the course of the Tennessee Infant and Toddler Caregiver Credential Pilot Project. And finally, providers who reported having worked with a mentor on a previous project were more likely to report an increase in the quality of parent-caregiver relationships.

Research Question 4:

What were participants' experiences and ratings of the credential project?

Providers were asked to provide feedback in the form of a survey that included several items under six different dimensions:

- 1) Expectations of program objectives
- 2) Benefits of the credential program (Buysee & Wesley, 2005; Brown, Wyne, Blackburn, & Powell 1979)
- 3) Effectiveness of the overall program (Parsons & Myers, 1984)
- 4) Feedback on their coach's knowledge and interpersonal style (Parsons & Myers, 1984)
- 5) Director administrative support
- 6) Instrumental support

There was also a section that asked providers for open-ended responses to specific questions about the coaching process. And finally, participants in Tier 1 only were asked to provide feedback about the training and workshop sessions they attended. Tables 16 – 26 below present the mean scores for each of the items on the feedback scales.

The overall mean for respondents on all scales combined was 3.66 for providers and 3.66 for directors (on a scale of 1- 4 with 1 = strongly disagree and 4 = strongly agree), suggesting that both providers and directors evaluate their experience in the credential pilot project as very effective and positive. It is worth noting that 98% of providers and 100% of directors responded agree or strongly agree with the statement "I would recommend this program to a peer or colleague." There were no significant differences in ratings among the different Tier groups, and finally, there were no significant associations among feedback ratings and amount of on-site coaching hours provided to each participant.

Respondents' open-ended statements, when asked for feedback about their experiences with their coach, supported the generally high scores on the feedback surveys. The only negative comment was in regard to a provider and director's disappointment with their coach leaving the Credential Project in the middle of the year.

Table 16: Expectations of Program Objectives

How well has the IT Credential Program met your expectations for the following objectives?

	N	Minimum	Maximum	Mean	SD
Increased my knowledge of child dev theory and practice	57	2.00	4.00	3.71	.49
Increased my knowledge of how to make relationships with children the foundation of my work	59	2.00	4.00	3.74	.48
Increased my knowledge of the importance quality interactions for infants' mental health	57	1.00	4.00	3.66	.61
Increased my knowledge of individual curriculum design	59	2.00	4.00	3.58	.57
Increased my knowledge of the importance of the role of family and community in providing quality care	58	2.00	4.00	3.68	.51

1 = Fell far below expectations; 4 = Exceeded expectations

Table 17: Benefits of IT Credential Program

	N	Minimum	Maximum	Mean	SD
I am better able to set goals for change	52	1.00	4.00	3.27	.74
I now use a more organized approach to solve problems	53	1.00	4.00	3.26	.83
I am able to work with other adults to make positive changes	52	1.00	4.00	3.37	.84
I can better assess my own effectiveness	53	1.00	4.00	3.40	.83
I am a better teacher	52	1.00	4.00	3.42	.84
I am more confident in my role	52	1.00	4.00	3.42	.84
I am better able to design high quality environments	52	1.00	4.00	3.52	.69
I have developed new approaches to working with individual children that will address their diverse learning needs	52	1.00	4.00	3.30	.75
I am confident that I can develop an appropriate curriculum for infants and toddlers in the future	52	1.00	4.00	3.44	.80

1 = Strongly Disagree; 4 = Strongly Agree

Table 18: Effectiveness of Overall Program

	N	Minimum	Maximum	Mean	SD
Program objectives for the IT Credential were clearly defined	53	1.00	4.00	3.51	.69
Methods for gathering information to assess needs were helpful	53	1.00	4.00	3.58	.56
Activities and events were tailored to our needs	53	1.00	4.00	3.49	.66
Program flexible enough to change if it wasn't meeting my needs	53	1.00	4.00	3.51	.63
Participating in this program met my expectations	52	1.00	4.00	3.52	.67
Overall quality of the IT Credential program was high	53	2.00	4.00	3.58	.63
As a result of this program, I now intend to stay in "the field" longer	53	2.00	4.00	3.36	.62
I would recommend this program to a peer/co-worker	52	1.00	4.00	3.65	.59

1 = Strongly Disagree; 4 = Strongly Agree

Table 19: Coach's Knowledge & Skills

	N	Minimum	Maximum	Mean	SD
Coach well-versed in ECE and the process of building collaborations	52	3.00	4.00	3.83	.38
Coach demonstrated respectful awareness of unique cultural diversity in our program	51	3.00	4.00	3.82	.38
Coach recommended appropriate strategies and resources	52	3.00	4.00	3.85	.36
Coach elicited information from others and is a good listener	51	3.00	4.00	3.84	.36
Coach demonstrated effective organizational skills	52	2.00	4.00	3.69	.57
Coach provided prompt feedback	52	2.00	4.00	3.75	.51
Coach worked collaboratively to clarify our roles and responsibilities	52	3.00	4.00	3.75	.43

1 = Strongly Disagree; 4 = Strongly Agree

Table 20: Coach's Interpersonal Style

	N	Minimum	Maximum	Mean	SD
Coach was comfortable to talk with	52	3.00	4.00	3.94	.23
Coach demonstrated flexibility and openness	52	3.00	4.00	3.92	.26
Coach was generally pleasant	52	3.00	4.00	3.94	.23
Coach expressed ideas without being overpowering	52	3.00	4.00	3.88	.32
Coach supported our active participation in the process	52	2.00	4.00	3.88	.37
Coach was respectful and caring	52	3.00	4.00	3.94	.23
Coach was creative in examining problems and options	52	3.00	4.00	3.92	.26
Coach was not disruptive to our daily operations	52	3.00	4.00	3.92	.26

1 = Strongly Disagree; 4 = Strongly Agree

Open-ended responses about experience with IT Coach
(Themes listed in order of most salient, common responses)

In which areas did you feel you needed the most guidance?

- Curriculum development
- Building my confidence with children and parents
- Setting up the environment
- Helping me understand/navigate TN Star Quality
- Issues regarding challenging child behavior and temperament
- Observational skills
- Understanding brain development and cognitive development

What aspects of the coaching were particularly strong and useful?

- Developing a relationship with someone who was available, supportive and gave that "personal touch"
- One-on-one, hands on, individualized approach
- Learning new strategies and approaches with young children
- Attending the trainings and being in the group meetings
- Getting resources and materials
- Getting help with TN Star Quality
- Obtaining more in-depth knowledge on certain topics like brain development and how to work with families

How would you describe your relationship with your coach?

- Felt she was a close partner
- Open and honest
- Respectful and professional
- A friend

How did this relationship benefit you professionally?

- I have become a better teacher
- I have more confidence in my work
- I reflect more on what it means to be working in this field
- I now have a mentor whom I can call in the future
- I've gained more knowledge about children and how to do my work
- I'm a better co-worker

What aspects of the coaching would you change?

- I wouldn't change a thing!
- More time with my coach
- Portfolio steps need to be more clear and organized
- Would like more opportunities to meet in small groups
- Miscellaneous suggestions (meeting times on Saturdays instead of during the week; don't hire people who will quit halfway through the project; put materials and resources on a CD or thumb-drive)

Table 21: Director/Administrative Support

	N	Minimum	Maximum	Mean	SD
My director was able to provide resources as needed	44	1.00	4.00	3.36	.74
My director was able to help find coverage for my class	43	1.00	4.00	3.35	.75
My director was supportive	44	2.00	4.00	3.48	.66

1 = Strongly Disagree; 4 = Strongly Agree

Table 22: Instrumental Support

	N	Minimum	Maximum	Mean	SD
Developing the portfolio was beneficial	50	1.00	4.00	3.21	.69
Materials provided by the project were useful (e.g., books, handouts, DVD's brochures)	49	3.00	4.00	3.78	.42
Transportation reimbursements made it possible to participate	45	1.00	4.00	3.60	.88

1 = Strongly Disagree; 4 = Strongly Agree

Table 23: Workshop Feedback (from Tier 1 participants)

Workshop Topic	Percentage who indicated the topic was one of their top 3 choices*
Health & Safety	24.2
Environment	24.2
Curriculum	33.3
Child Development	30.3
Family & Community	21.2
Social & Emotional Health	24.2

*Percentages add up to more than 100 because selections were not mutually exclusive



Open-ended feedback about workshops:
(Themes listed in order of most common responses)

What other topics would you like to see covered in the future?

- Tennessee Early Learning Developmental Standards (TN-ELDS)
- Behavior and positive discipline
- Art activities for infants and toddlers
- Ideas for outside play
- More on parents, family, and culturally sensitive care
- How to deal with co-workers; how to respect others' ideas

Suggestions for how the workshops can be improved:

- Needs no improvement – I liked everything
- Less time in workshops; more one-on-one time with my coach
- Improve the portfolio process
- Offer child care during the workshops
- Tailor trainings for Family Child Care providers
- Offer on-line support

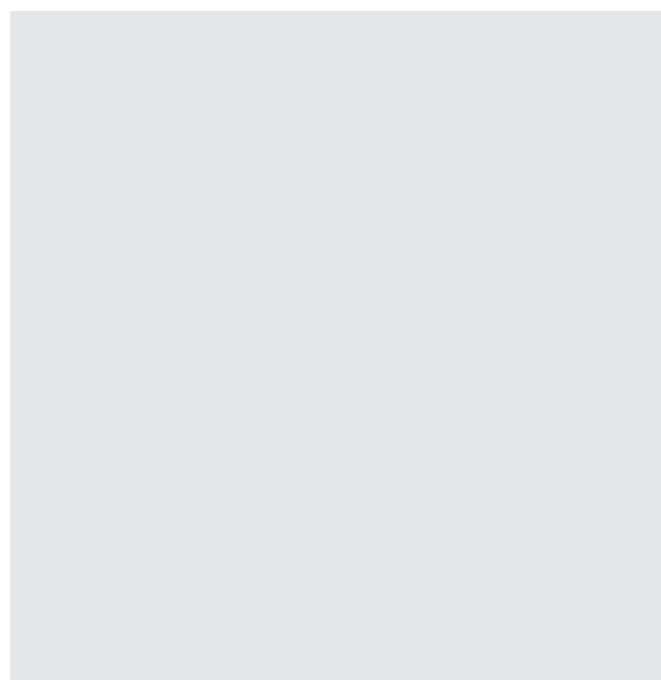


Table 24: Child Care Administrator Feedback - Program Objectives.

"I have seen evidence that the participating teacher..."	N	Minimum	Maximum	Mean	SD
Increased her knowledge of child development theory & practice	33	2.00	4.00	3.67	.54
Increased her knowledge of how to make relationships with children the foundation of her work	33	3.00	4.00	3.55	.50
Increased her knowledge of the importance of quality interactions for infants' mental health	33	3.00	4.00	3.76	.43
Increased her knowledge of individual curriculum design	33	2.00	4.00	3.63	.54
Increased her knowledge of the importance of the role of family and community	33	3.00	4.00	3.61	.49

1 = Strongly Disagree; 4 = Strongly Agree

Table 25: Child Care Administrator Feedback - Effectiveness of Overall Program

	N	Minimum	Maximum	Mean	SD
Program objectives for IT Credential were clearly defined	33	3.00	4.00	3.61	.49
Methods for gathering information to assess needs were helpful	33	2.00	4.00	3.58	.56
Activities and events were tailored to our needs	33	2.00	4.00	3.45	.61
Program was flexible enough to change if it wasn't meeting my needs	32	2.00	4.00	3.66	.48
Participating in this program met my expectations	33	2.00	4.00	3.61	.55
Overall quality of the IT Credential program was high	32	3.00	4.00	3.63	.49
I would recommend this program to another center/program	33	3.00	4.00	3.73	.45

1 = Strongly Disagree; 4 = Strongly Agree

Table 26: Child Care Administrator Feedback - Feedback on Coach

	N	Minimum	Maximum	Mean	SD
Coach versed in ECE and the process of building collaborations	33	2.00	4.00	3.76	.50
Coach demonstrated respectful awareness of unique cultural diversity in our program	33	3.00	4.00	3.73	.45
Coach was comfortable to talk with	33	3.00	4.00	3.79	.41
Coach demonstrated flexibility and openness	33	2.00	4.00	3.73	.51
Coach was not disruptive to our daily operations	33	1.00	4.00	3.70	.63

1 = Strongly Disagree; 4 = Strongly Agree

Themes from directors' open-ended feedback responses:
(Themes listed in order of most common responses)

- Teachers' gained knowledge is reflected in the activities she now does with children.
- I've noticed more positive teacher interactions with children and families.
- I've noticed positive changes in the curriculum.
- I've noticed more confidence and more professionalism.
- She's received more positive feedback from parents.
- She's gained more knowledge about child development theory and developmentally appropriate practices.
- I've noticed positive changes in the classroom environment.

Research Question 5:

What are the associations among participants' ratings of the IT Credential Program and increases in key outcome scores?

This section of the analysis explores whether participants' ratings of their experience in the Tennessee Infant and Toddler Credential Pilot Project were associated with how much their scores increased (or decreased) from Time 1 to Time 2.

The most salient findings are in regard to decreases in General Self-Efficacy (children are deficient) scores from Time 1 to Time 2. Providers who decreased their endorsement of these beliefs at Time 2 were also more likely to rate the IT Credential Program higher on the following dimensions:

- Higher total overall feedback (.37**)
- Higher Program Effectiveness (.38**)
- Higher Coach Knowledge and Skills (.26*)
- Higher Coach Interpersonal Style (.38**)

Additional findings include:

- Increases in Personal Self-Efficacy (flexible, collaborative) beliefs were associated with higher ratings of Instrumental Support (.25*)
- Increases in parent-provider relationship scores were associated with higher ratings of Coach Interpersonal Style.

SECTION II: COACH DATA

Coaches and their experiences in the Tennessee Infant and Toddler Credential Pilot Project were a key focus in this evaluation. This professional development initiative – like many others in this country – was driven by the direct services delivered by the coaches. As a result, we were interested in examining coaches' backgrounds, beliefs and experiences during the pilot year, so that future, program leadership will be able to tailor coaches' recruitment, resources, and training to increase likelihood of success.

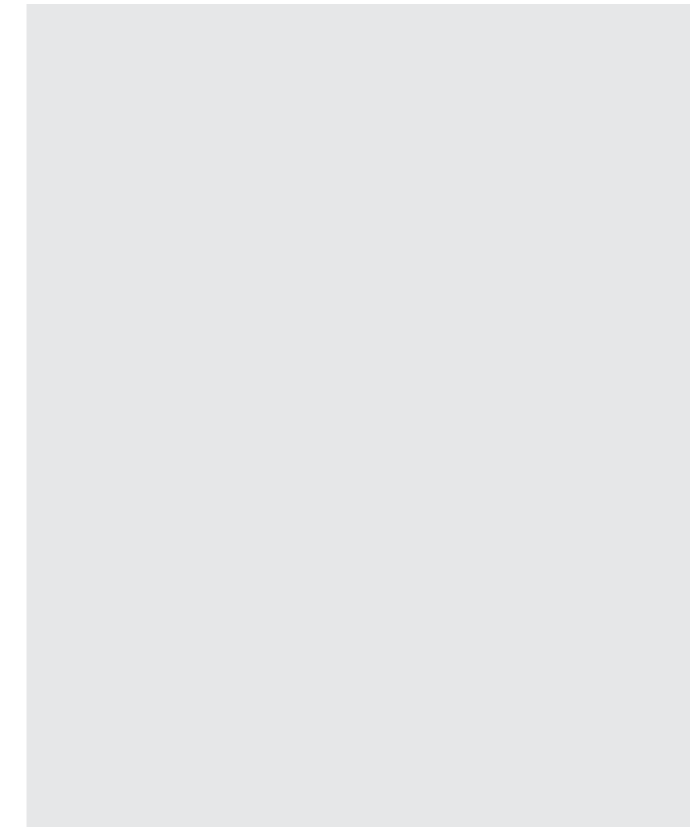
Research Question 1:

Did coaches' ratings of their knowledge and skills change from the beginning to the end of the program?

Besides collecting information about coaches' background characteristics, (see Methods section), we also asked coaches to complete the Knowledge and Skills Inventory for Consultants (Buisse & Wesley, 2005; Adapted from Klein & Kontos, 1993). Research on early education coaching and consultation describes three central interrelated tasks of coaches – problem solving, social influence, and support or development (Buisse & Wesley, 2005; Erchul & Marten, 2002). To accomplish these three tasks, there are a set of core skills and characteristics that effective coaches must possess. These include: interpersonal skills, communication skills, problem solving skills, skills in working with organizations, group facilitation, responsiveness to cultural diversity, and ethics (Buisse & Wesley, 2005; Dougherty, 2000; Parsons & Myers, 1984). Coaches filled out the 33 item Knowledge and Skills Inventory for Consultants, which asked questions like, “with regard to communication skills, I am able

to elicit information from persons involved in the coaching process.” Coaches were asked to rate themselves on a Likert scale (1 = strongly disagree; 5 = strongly agree). Data was collected at the beginning of the project and then again one to two months after the coaches ended their sessions with the providers.

Paired sample t-test analyses indicated that the only subscale that showed a statistically significant increase from Time 1 to Time 2 was the Basic Knowledge subscale ($p < .05$). None of the other subscales showed significant increases. We hypothesized that coaches' self-ratings of knowledge and skill might be associated with key outcome measures for providers. Indeed, when coaches rated themselves higher in the area of Systems Change knowledge, we found greater increases in provider sensitivity (CIS) ($p < .01$).



Research Question 2:

Were coaches' ratings of their professional comfort and support from providers' administrators associated with scores on the key outcome variables?

There is little research examining the effectiveness of coaching in early care and education settings. There are some promising studies which have identified professional comfort as a construct that might impact how a coach views the challenges inherent in her work, and in turn, how she moves towards success with administrators and providers. Professional comfort is a term borrowed from the early childhood consultation literature (Wesley, Buysse, & Keyes, 2000; Wesley, Buysse, & Skinner, 2001; Buysse & Wesley, 2005), which refers to coaches' or consultants' comfort with different aspects of the coaching process such as, characteristics of the teacher (e.g., education, attitudes and expectations) and characteristics of the program (e.g., group size, ratios, access to resources, etc.).

The first hypothesis was that professional comfort – that is – the extent of challenges present in these varying early childhood environments – would be associated with coaches' background (e.g., education; experience; knowledge and skills). Surprisingly, we found that less education for coaches was associated with higher ratings of professional comfort ($p < .001$).

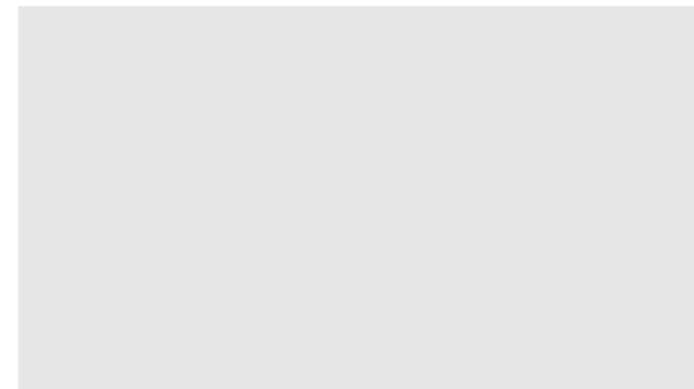
The second hypothesis was that coaches' professional comfort might be associated with key outcome performance measures such as environmental quality and provider sensitivity. The results of this analysis are presented below in Table 27.

Table 27: Associations among Coaches' Professional Comfort and Key Outcome Measures

Key Outcome Variables	Coach Professional Comfort Overall Mean	Professional Comfort Teacher Characteristics	Professional Comfort Program Characteristics	Professional Comfort Support from Provider's Administrator
ITERS-R / FDCRS T1	.39*	.42**	.50**	-
ITERS-R / FDCRS T2	.32*	.36*	.47**	-
Sensitivity (CIS) T1	.45***	.47***	.41**	-
Sensitivity (CIS) T2	.68***	.71***	.63***	-
Harshness (CIS) T1				-
Harshness (CIS) T2	-.38**	-.34*	-.44**	-
Detachment (CIS) T1				-
Detachment (CIS) T2				-

* $p < .05$; ** $p < .01$; *** $p < .001$

The findings indicate that coaches had higher professional comfort when environment rating scores and sensitivity scores were higher (both at Time 1 and Time 2). Conversely, they had less professional comfort when there was more harshness at the end of the project (Time 2). And finally there were no significant associations with perceived support from provider's supervisor and any of the key outcomes.



Research Question 3:

How did coaches rate their experience with the IT Credential Program?

A key strategy in refining any new project is to examine participants' perceptions of how well they were supported in their work. There is far too little in the literature which provides definitive guidelines about the type, quality and quantity of resources and support needed by early care and education coaches to impact teachers and children. By and large, the coaches in this study were comfortable or very

comfortable with the type and quantity of resources provided to them. The two areas that could use a little more focus in the future include "information about the coaching process" and "team collaboration." Table 28 below lists coaches' response rate for their perceptions of on-the-job resources.

Table 28: Coaches' Access to Resources

"Please fill out the extent to which you felt you had access to the following resources to help you do your job as a coach."

	1 Not at all comfortable	2 Somewhat comfortable	3 Comfortable	4 Extremely comfortable
Information about the coaching process and outcomes associated with coaching practices		17%	17%	66%
Team collaboration		17%	33%	50%
Flexible funding (mileage reimbursement; enough funding to visit teachers when necessary)				100%
Technology (email; computers; internet access; etc.)				100%
Training / Professional Development				100%
Access to experts				100%
Access to information about specific topics like: <ul style="list-style-type: none"> • Typical child development • Challenging behaviors • Working with children w disabilities 				100%

In regards to coaches' access to resources, we also hypothesized that coaches' perceptions of their access to resources (e.g., training, team collaboration, access to experts) would be associated with professional comfort. Indeed, we found that having more information about the coaching process and the outcomes associated with coaching practices was associated with higher ratings of professional comfort ($p < .01$).

In addition to the quantitative data, we also collected qualitative data in the form of open-ended questions on the Coaches' Access to Resources Survey and also in the form of a focus group with all the coaches in the project. Main themes from those sources are highlighted below.

Open-ended responses from survey:

"If you needed to access additional information, where did you seek information? What were the topics or issues?"

- Sought information about the college enrollment process. Sought information about how to academically advise students.
- Visited the PITC website
- Used resources from the CSEFEL website
- Used resources from state's TNCCPT

Focus Group Themes:

We conducted a 2.5 hour focus group with all the coaches. The session was recorded and transcribed. We then identified salient themes and sub-themes that would inform future implementation of the credential, future evaluations, and future systems building and policy.

Key findings are highlighted below.

Training and preparation:

- All coaches were highly trained and experienced before the credential pilot rolled out.
- Additional areas of training might include organizational management; modules 3a, 3b, and 4 from CSEFEL; infant mental health issues; early intervention screening; college advising.

Timeline for the credential project:

- Helpful to have an orientation and a end-of-the-year celebration.
- Helpful to have all evaluation tools; resource materials; and portfolio materials before a new cohort begins.
- Have very clear deadlines for coaches.

Geographical limitations for coaches

- Impacted amount of face-to-face time for mentoring.
- Need more coaches.
- Impacted ability for some of the coaches to find time to meet as a group.

Supervision and support:

- Supervisor always available
- Flexible
- Encouraging
- Helpful

Portfolio issues:

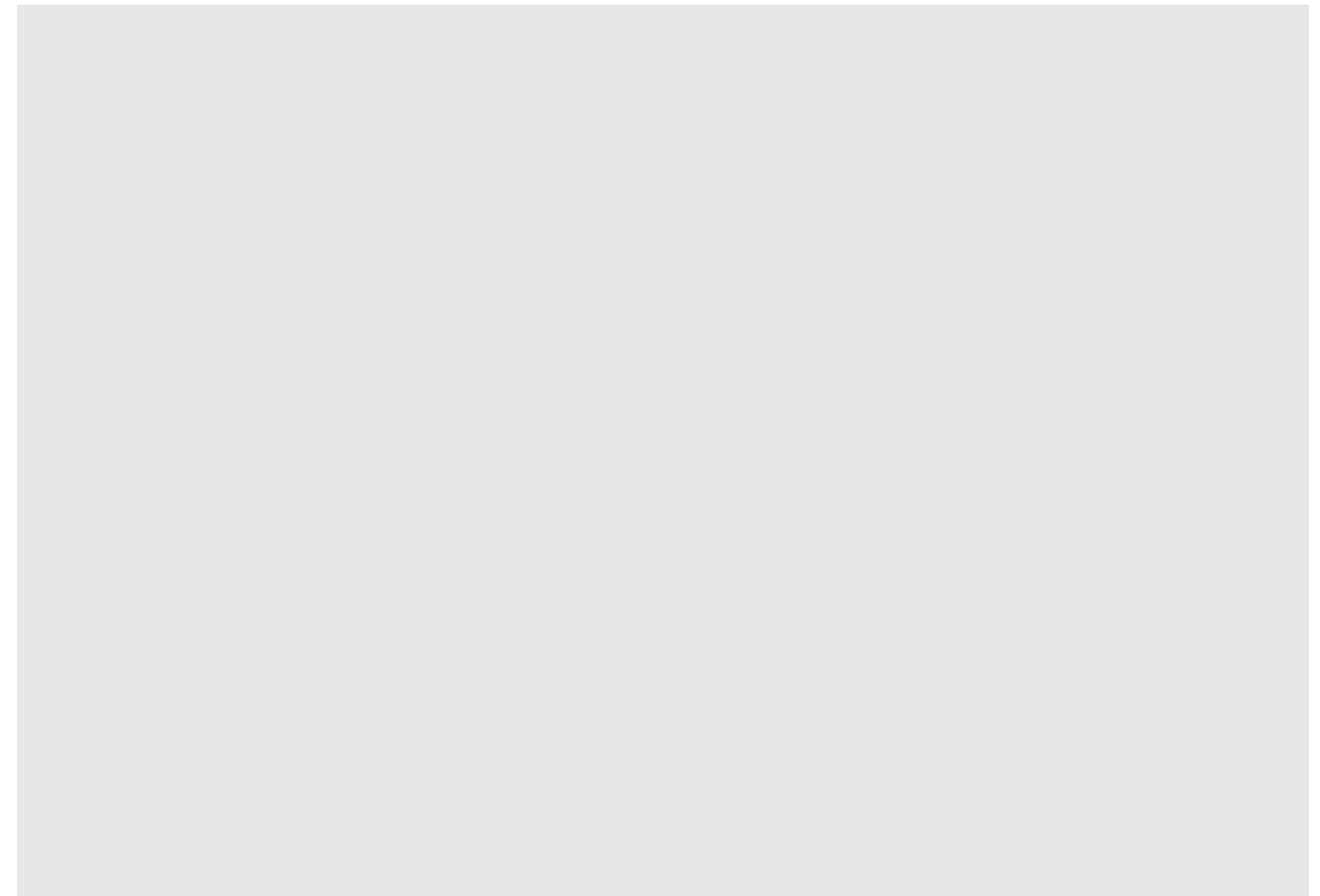
- Differential experience with portfolios. Tier 1 providers enjoyed the process. Difficult for the rest. Tier 1 providers' portfolio sections coincided with weekly trainings, and reinforced during one-on-one coaching sessions.
- Could try to overlap with college coursework a little more.
- Pre-occupied with college coursework. Hard to find time to complete the portfolio.
- Felt rushed at the end of the project. Not enough time.
- Many providers questioned the utility and value of the portfolios.

Most beneficial and enjoyable aspects of coaching:

- One-on-one conversations with providers and directors.
- Modeling in the classroom or home.
- Developing personal relationships with providers and directors.
- Continuity of trainings and individual coaching sessions.

Policy implications from coaches' perspectives:

- Continuity of training (especially for Tier 1) makes professional development more effective.
- Beneficial to align credential with other systems such as TOPSTAR, TECTA, TN Star Quality, CCR&R, , and possibly to accreditation standards.
- The credential provides a new motivation for those professionals who have burned out on training. Gives them something new and meaningful to achieve.



Summary

The results of this evaluation demonstrate positive findings on all key outcome measures. Global environment quality scores significantly increased after completing the Tennessee Infant and Toddler Credential Pilot Project. In regards to providers' interactions with children, providers were more sensitive and less harsh and detached after completing the pilot project. Additionally, providers' belief in their ability to make positive changes increased, and their ratings of their relationships with parents increased.

Providers' background characteristics such as number of years working in the early care and education field, previous work with a mentor, and program accreditation were linked with greater increases on environment quality and provider sensitivity. Not surprisingly, providers who scored lower on key outcome measures at Time 1 showed more change at Time 2. For example, providers who scored lower on environment quality at Time 1, showed more growth in environment quality scores at Time 2.

The beliefs held by providers also appear to be linked to outcome scores. For example, providers who started the project with more negative beliefs about their ability to effectuate change were more likely to see greater increases in environment quality and relationships with parents by the end of the pilot project. Conversely, providers who started the project with fewer negative beliefs about their ability to effectuate change, showed less improvement on provider sensitivity and harshness.

Providers' feedback on the Tennessee Infant and Toddler Credential Pilot Project was collected via satisfaction surveys and focus groups. Providers' reported feedback was overwhelmingly positive. 98% of providers and 100% of directors responded agree or strongly agree with the statement "I would recommend this program to a peer or colleague." Almost all aspects of the credential project were rated very favorably by the participants. This includes: coaching, training, academic coordination, and materials. The only aspect of the project that needed improvement was the portfolio component.

Providers who were able to improve their beliefs about their ability to effectuate change in their child care setting were more likely to rate their experience in the pilot project with higher scores. There were no significant differences in ratings among the different Tier groups. And the total numbers of on-site coaching hours provided to each participant did not appear to be linked with providers' satisfaction with the pilot project.

Findings from coaches' data indicate that their levels of professional comfort with the providers' characteristics were positively associated with key outcome scores. For example, coaches' overall professional comfort with a child care program was linked to that program having higher environment quality scores. Coaches rated their access to resources very favorably. Additionally, we found that having more information about the coaching process was associated with higher ratings of professional comfort.

Implications for Practice / Program Design & Implementation

Not only has the data from the credential pilot demonstrated positive outcome data, but the project was very favorably received by providers, administrators, and coaches alike. One of the biggest implications for program design and implementation is the training and preparation of the coaches. The coaches who participated in this pilot project were already working as Infant and Toddler Specialists who were embedded in a statewide Infant/Toddler Specialist Network. As Infant and Toddler Specialists they had access to and had experienced high quality training and professional development. They also had experience working together as a team, and had an experienced and supportive supervisor. Additionally, these Specialists knew how to align with other aspects of Tennessee's system of professional development very well. Finally, not only did the Infant and Toddler Specialists have experience providing training and technical assistance to child care providers, but also many of the Specialists had already developed relationships with their providers previous to entering as a credential "coach." This level of training, preparation and experience no doubt impacted the quality of service received by child care programs.

Another implication for practice involves recruitment of future participants. Not surprisingly, those providers who scored lower on key outcome measures at Time 1 made significantly higher gains at Time 2. In addition, providers who had less experience in their programs and less experience in the field made more improvements between Time 1 and Time 2. And finally, the salient finding regarding negative beliefs about one's own ability to effectuate change, indicates that starting out with providers who seem to have more challenges at the beginning appear to yield significant returns on the investment of training and coaching.

The results of this evaluation demonstrate positive findings on all key outcome measures. Global environment quality, provider sensitivity and provider self-efficacy increased. Provider detachment and harshness decreased after participants completed the pilot project.

Implications for Policy

The policy implications are significant in that this is a clear demonstration that the activities from the *Tennessee Infant and Toddler Credential Pilot Project* will produce positive changes in the overall quality of child care programs including caregiver interactions. The two biggest themes in regard to implications of policy involve the recruitment and training of additional Infant and Toddler Specialists who can also serve as coaches, and enhancing alignment among the credential and other early childhood systems such as TECTA (higher education partner), TN Star Quality, TOPSTAR, CCR&R, and DHS.

An additional consideration is the refinement of definitions around what constitutes coaching and what constitutes other forms of technical assistance. States around the country are grappling with this same issue. Clarifying definitions will move us closer to identifying unique aspects of professional development approaches that yield results in different contexts.

Finally, research on the effectiveness of infant and toddler credentials is virtually non-existent. There is more to be learned about what constitutes an effective credential program. For example, research on effective training for infant and toddler child care providers indicates that family child care programs respond to training and technical assistance differently than center based programs (Kreader et al., 2005). Policy makers should continue to commit to funding research evaluations that include observational data, and not just provider-report data. Such evaluations can further determine whether the credential is having the intended impact on programs, and can also push the field toward a deeper understanding of what constitutes effective professional development for infant and toddler caregivers.



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Key Elements of the Infant Toddler Credential Pilot

Key Elements	Goals for learning
Health and Safety	<p>Tennessee’s infant and toddler caregivers will increase their knowledge of health and safety in the infant and toddler classroom by learning:</p> <ul style="list-style-type: none"> • about safe sleep practices as well as risk factors for SIDS and accidental suffocation. • about safe and healthy feeding of infants and toddlers including safe and nutritious foods, appropriate environment and supervision and sanitary food service. • how to create and maintain a safe classroom environment by choosing safe and developmentally appropriate equipment, routine care furnishings and toys. • how to reduce illness in the infant and toddler classroom by consistent hand washing and sanitation practices.
Environment and Curriculum	<p>Tennessee’s infant and toddler caregivers will increase their knowledge of developmentally appropriate environments and curriculum for infants and toddlers by learning:</p> <ul style="list-style-type: none"> • what equipment, both routine care and play is appropriate for the infant and toddler classroom or home, including situations where age groups are mixed. • how to promote exploration and discovery through the use of developmentally appropriate classroom equipment including books and manipulative equipment. • how to create an infant and toddler environment with curriculum that provides positive exposure of children and their families to different cultures. • how to use routines as curriculum.
Child Development	<p>Tennessee’s infant and toddler caregivers will increase their knowledge of child development by learning:</p> <ul style="list-style-type: none"> • about early brain development and the factors that influence healthy brain development. • about the ages of infancy and children’s individual needs during each period. • how to individualize activities and interactions to meet each child on his or her developmental level. • how to provide appropriate activities that promote discovery and exploration while maintaining a physically and emotionally safe and healthy environment.
Family and Community	<p>Tennessee’s infant and toddler caregivers will increase their knowledge of the important role family and community plays in an infant’s life by learning:</p> <ul style="list-style-type: none"> • to recognize the family as the center of a young child’s life. • how to support families in caring for young children. • to respect the additional responsibilities, feelings and fears of families caring for children with special needs. • to partner with families in decision making and encouraging their participation in the child care program. • to provide care and support that is respectful to each family’s culture.
Social Emotional Wellness	<p>Tennessee’s infant and toddler caregivers will increase their knowledge of social emotional wellness in infants and toddlers by learning:</p> <ul style="list-style-type: none"> • about the importance of early attachments to parents and caregivers and how these attachments affect a child’s social and emotional health. • about differing temperaments of infants and toddlers and how to individualize care for each child. • about the different stages of social and emotional development. • the importance of primary caregivers and continuity of care.

Tier I Infant and Toddler Credential

Primary Infant and Toddler Specialists: Amber Freeman/LeeAnn O’Dell
Supporting Infant and Toddler Specialists: Melody Chambers/Karen Wright

45 clock hours of infant and toddler specific community- based training related to all 5 Key Elements OR TECTA Infant and Toddler Orientation with 15 additional clock hours of infant and toddler specific community- based training related to all 5 Key Elements

AND

At least 6 months experience in the direct care of infants and toddlers in a DHS licensed childcare center or Family/Group Home

AND

40 clock hours of onsite coaching by an assigned Infant and Toddler Specialist

AND

Basic portfolio development including development of a professional development plan

This tier will be piloted in East Tennessee with 15 people participating

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This project is funded through a contract with the Tennessee Department of Human Services.

Tier II Infant and Toddler Credential

Primary Infant and Toddler Specialist: Kathy Ennis
Supporting Infant and Toddler Specialists: Karen Lock/Logan Raines/ Rhonda Middleton

CDA with Infant and Toddler Endorsement

OR

CDA with Preschool Endorsement plus an additional 45 clock hours of community -based infant and toddler specific training or 3 credit hours of infant/toddler specific academic coursework related to all 5 Key Elements

OR

Tier 1 credential plus an additional 12 clock hours of community- based training related to all 5 Key Elements

AND

At least 1 year experience in the direct care of infants and toddlers in a DHS licensed childcare center or family/group home

AND

40 clock hours of onsite coaching by an assigned Infant and Toddler Specialist

AND

Intermediate level of portfolio development including development of a professional development plan

This tier will be piloted in Middle Tennessee with 15 participants

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This project is funded through a contract with the Tennessee Department of Human Services.



**Tier III Infant and Toddler
Credential**

Primary Infant and Toddler Specialist: Christy Wallsmith
Supporting Infant and Toddler Specialists: Minnie Perkins/Sonja Nesbitt

Associate's Degree in Early Childhood Education or closely related degree with at least 9 credit hours of infant and toddler specific academic coursework related to all of the 5 Key Elements

OR

CDA with Infant and Toddler Endorsement with 9 additional credit hours of Infant and Toddler specific academic coursework related to all of the 5 Key Elements

OR

Tier 2 Credential with 9 additional credit hours of Infant and Toddler specific academic coursework related to all of the 5 Key Elements

PLUS

At least 18 months of experience in the direct care of infants and toddlers in a DHS licensed child care center or family/group home

AND

40 clock hours of onsite coaching by an assigned Infant and Toddler Specialist

AND

Advanced level of portfolio development including development of a professional development plan

This tier will be piloted in West Tennessee with 15 participants.

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This project is funded through a contract with the Tennessee Department of Human Services.
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**Tier IV Infant and Toddler
Credential**

Primary Infant and Toddler Specialist: Kathy Ennis

Bachelor's or advanced degree in Early Childhood Education or closely related degree with at least 15 credit hours of Infant and Toddler specific academic coursework related to all of the 5 Key Elements

AND

At least 18 months experience in direct care of infants and toddlers in a DHS licensed child care center or family/group home

AND

40 clock hours of onsite mentoring by an assigned Infant and Toddler Specialist

OR

15 clock hours of coaching by an assigned Infant and Toddler Specialist and
20 clock hours of serving as a mentor to an assigned Infant and Toddler caregiver

AND

Advanced level of portfolio development including development of a professional development plan

This tier will be piloted in Middle Tennessee with 5 participants.

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This project is funded through a contract with the Tennessee Department of Human Services.
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