Children’s early interactions with adults during the first three years of life are instrumental in the development of their language, cognitive, and social skills, which in turn are strongly related to later achievement and success into adolescence. Early childhood professionals working with infants and toddlers need to understand children’s capacity to learn and how to promote young children’s development and learning. Key questions include the following: How can professional development (PD) help to meet this objective, and how can caregivers change their practices to better support children’s development and learning?

Prior research about how PD can change teacher beliefs, knowledge, and practices has mostly focused on preschool and school-age children. Those caring for infants and toddlers often have less access to and fewer opportunities for sustained and systematic PD. The first few years of a child’s life are especially important in brain development. Thus, there is a clear need to examine the potential benefits of different forms of PD specifically for caregivers serving infants and toddlers.

**Box 1. We Grow Together terms**

**Caregivers** refer to nonparental caregivers and teachers in Early Head Start (EHS), community-based child care centers, and family child care (FCC) homes.

**PD providers** refer to a range of early care and education (ECE) staff who provide professional development, such as managers and education directors, supervisors, mentors, coaches, employees of technical assistance (TA) networks or centers, and master teachers in the ECE setting. PD providers were either staff within caregivers’ programs or employed by outside entities.

**Classrooms** refer to both center-based and FCC settings serving infants and toddlers.

The goal of this brief is to describe differences in beliefs, knowledge, and practices of infant and toddler caregivers from fall 2018 to spring 2019 (see Box 1 for key terms)—before and after implementation of the We Grow Together (WGT) PD system (see Box 2). Findings about these differences should not...
Box 2. About the We Grow Together Field Test

The goal of the WGT system is to improve the quality of caregiving in ECE settings by helping infant-toddler caregivers use daily interactions to support the development of young children. We designed the WGT field test to examine whether a diverse sample of caregivers, working in concert with their local PD providers, could use the WGT system to change their beliefs about and knowledge of evidence-based practices, and improve the quality of their practices with infants and toddlers. For the field test, caregivers and their PD providers used the WGT system between January and April 2019, in real world conditions. The field test used existing local PD providers and sampled from a range of early care and education (ECE) settings serving infants and toddlers across multiple localities.

We developed the field test using a pretest-posttest design. Findings from these analyses should not be interpreted as causal because we did not include a comparison group.

Pairs of caregivers and PD providers (271 caregivers received PD from 168 providers) participated in the WGT field test. These field test participants remained in the field test as of March 1, 2019, eight weeks after implementation began. Their settings included 214 center-based classrooms and 57 family child care (FCC) classrooms; 105 classrooms were Early Head Start (EHS) and 166 were community-based classrooms. Based on the ages of the children on the day of the fall classroom observations, there were 68 infant classrooms and 146 toddler classrooms in center-based settings.

This group of WGT field test participants does not represent PD providers and caregivers nationally. Therefore, readers should not use these data to draw conclusions about the experiences of PD providers and caregivers nationally. PD providers and caregivers agreed to participate in an online PD program for about four months with an additional month for PD provider remote training. They reported they could read materials written in English.

**WGT field test participants, by type of caregiver setting**

- **Community FCC**: 46%
- **EHS FCC**: 15%
- **EHS center-based**: 6%
- **Community center-based**: 33%

Source: Fall 2018 WGT roster
EHS = Early Head Start; FCC = family child care.

What is the We Grow Together PD system?

WGT was developed to support PD that could improve the quality of caregivers’ interactions with infants and toddlers. WGT is aligned with the principles and practices of the Quality Care for Infants and Toddlers (QCIT), an evidence-based observational measure of caregiver quality with a focus on the following domains:

- Support for Social-Emotional Development
- Support for Language and Literacy Development
- Support for Cognitive Development
The WGT system includes materials designed to enable trained local PD providers to support caregivers in learning to implement practices with the young children in their care (Exhibit 1). The goal is for caregivers to adopt the evidence-based practices as habits and make them a regular part of how they interact with infants and toddlers.

Exhibit 1. Key components of WGT system

WGT PD modules

In accordance with adult learning principles and research on PD (Aikens et al. 2016), caregivers and PD providers in the field tested collaborated to select modules and goals. They could select from an array of PD tools aligned with constructs and competencies in the QCIT measure. We organized the tools into nine web-based modules or sections (Box 3); these modules were further divided into key practices that enabled caregivers to explore skills and practice new caregiving techniques (see final report; Atkins-Burnett et al. 2020). Within the key practices, we arranged the PD tools in a consistent pattern. Practices and strategies that caregivers learn are common to more than one module. For example, responding to children’s cues is a key objective in the Support Children’s Language Use and two Support Social-Emotional Development modules.

Box 3. WGT PD modules

- Support Social-Emotional Development: Caregiver-Child Relationships
- Support Social-Emotional Development: Regulation of Behavior and Emotions
- Support Non-Mobile Infants’ Peer Interactions
- Support Toddlers’ Peer Interactions
- Support Infants’ Cognitive Development
- Support Toddlers’ Cognitive Development
- Support Children’s Language Use
- Support Children’s Understanding of Language
- Support Literacy
Were there differences in caregivers’ knowledge and beliefs about caregiving and development from fall 2018 to spring 2019?

Caregivers reported stronger beliefs and knowledge about supporting children’s language development after WGT implementation (from fall 2018 to spring 2019). There was no change in beliefs about supporting social-emotional development, cognitive development, or general child development. Specifically, consistent with reports of module use, beliefs about how to support language development increased from fall to spring for the full sample (Exhibit 2), and among EHS, community-based, center-based, and FCC caregivers. Additionally, EHS caregivers’ beliefs about general child development increased from fall to spring. EHS caregivers did not differ from fall to spring in beliefs about social-emotional development or beliefs about cognitive development. Center-based, community-based, and FCC caregivers did not differ from fall to spring in beliefs about social-emotional development, cognitive development, or general child development.

Exhibit 2. From fall 2018 to spring 2019, caregivers reported stronger knowledge about language development

<table>
<thead>
<tr>
<th>Beliefs about</th>
<th>Fall 2018</th>
<th>Spring 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>social-emotional development</td>
<td>4.9</td>
<td>5.0</td>
</tr>
<tr>
<td>language development</td>
<td>4.4</td>
<td>4.8</td>
</tr>
<tr>
<td>cognitive development</td>
<td>5.1</td>
<td>5.1</td>
</tr>
<tr>
<td>child development</td>
<td>4.8</td>
<td>4.7</td>
</tr>
</tbody>
</table>

Source: Fall 2018 WGT Caregiver Background Survey, Spring 2019 WGT Caregiver Feedback Survey.
Notes: Items adapted from Baby FACES 2018 and created by the QCIT PD team. The possible range was 1 (Strongly disagree), 2 (Disagree), 3 (Slightly disagree), 4 (Slightly agree), 5 (Agree), and 6 (Strongly agree), with some items reverse coded.
Mean imputation was conducted when at least 75 percent of the items had responses.
* Indicates a significant difference between fall 2018 and spring 2019 means (* p < 0.05; ** p < 0.01; *** p < .001) in a two-tailed test.
Were there differences in caregivers’ self-efficacy from fall 2018 to spring 2019?

From fall 2018 to spring 2019, on average, caregivers perceived a greater ability to make a difference in supporting the development and learning of infants and toddlers (Exhibit 3). When looking at caregivers by setting type, we saw increases from fall to spring for center-based caregivers but not for FCC caregivers. When looking by affiliation, we saw increases from fall to spring for caregivers in EHS but not community-based settings.

Exhibit 3. From fall 2018 to spring 2019, caregivers reported higher self-efficacy

<table>
<thead>
<tr>
<th>Setting</th>
<th>Fall 2018</th>
<th>Spring 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>All caregivers</td>
<td>4.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Center-based caregivers</td>
<td>4.6</td>
<td>4.7</td>
</tr>
<tr>
<td>FCC caregivers</td>
<td>4.7</td>
<td>4.8</td>
</tr>
<tr>
<td>EHS caregivers</td>
<td>4.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Community-based caregivers</td>
<td>4.7</td>
<td>4.7</td>
</tr>
</tbody>
</table>

Source: Fall 2018 WGT Caregiver Background Survey, Spring 2019 WGT Caregiver Feedback Survey.

Note: Subgroups examined caregivers by setting type (i.e., center-based caregivers or FCC caregivers) and by affiliation (i.e., EHS caregivers or community-based caregivers). The four subgroups (center-based, FCC, EHS, and community-based) are not mutually exclusive. We did not make any comparisons across subgroups.

* Items were adapted from the Teacher Opinion Survey (Geller and Lynch 1999). The possible range was 1 (Strongly disagree), 2 (Disagree), 3 (Slightly disagree), 4 (Slightly agree), 5 (Agree), and 6 (Strongly agree), with some items reverse coded.

* Indicates a significant difference between fall 2018 and spring 2019 means (* p < 0.05; ** p < 0.01; *** p < .001) in a two-tailed test.
Were there differences in the quality of caregiver-child interactions from fall 2018 to spring 2019?

Observations of caregiver-child interactions indicated improvements in caregivers’ Support for Social-Emotional Development from fall 2018 to spring 2019 (Exhibit 4). This finding is consistent with how the WGT system was developed. Support for Social-Emotional Development was woven into all module practices to varying extents. There were no mean differences between the fall 2018 and spring 2019 scores on the overall caregiver-child interaction quality, or the other two domain scores.

Exhibit 4. From fall 2018 to spring 2019, caregivers improved in Support for Social-Emotional Development, on average

Source: WGT Field Test 2019 QCIT observations.
Note: Mean quality is 500.
* Indicates a significant difference between fall 2018 and spring 2019 means (\( p < 0.05 \); ** \( p < 0.01 \); *** \( p < .001 \)) in a two-tailed test.
Early Head Start (EHS) caregivers improved in Support for Social-Emotional Development and Support for Language and Literacy Development from fall 2018 to spring 2019 (Exhibit 5). The average caregiver-child interaction quality scores for EHS caregivers increased in Support for Social-Emotional Development and in Support for Language and Literacy Development from fall to spring. Center-based, community-based, and family child care classrooms did not differ from fall to spring in average overall quality or on any of the domain scores.

Exhibit 5. From fall 2018 to spring 2019, EHS caregivers improved in Support for Social-Emotional Development and Support for Language and Literacy Development

<table>
<thead>
<tr>
<th>Overall caregiver-child interaction quality</th>
<th>Fall 2018 W-score</th>
<th>Spring 2019 W-score</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHS</td>
<td>498.1</td>
<td>500.8</td>
</tr>
<tr>
<td>Community-based</td>
<td>499.1</td>
<td>498.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support for Social-Emotional Development</th>
<th>Fall 2018 W-score</th>
<th>Spring 2019 W-score</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHS</td>
<td>503.8</td>
<td>509.7</td>
</tr>
<tr>
<td>Community-based</td>
<td>504.5</td>
<td>503.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support for Language and Literacy Development</th>
<th>Fall 2018 W-score</th>
<th>Spring 2019 W-score</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHS</td>
<td>498.7</td>
<td>502.8</td>
</tr>
<tr>
<td>Community-based</td>
<td>501.7</td>
<td>501.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support for Cognitive Development</th>
<th>Fall 2018 W-score</th>
<th>Spring 2019 W-score</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHS</td>
<td>491.9</td>
<td>491.3</td>
</tr>
<tr>
<td>Community-based</td>
<td>491.3</td>
<td>489.1</td>
</tr>
</tbody>
</table>

Source: WGT Field Test 2018 and 2019 QCIT observations.
* Indicates a significant difference between fall 2018 and spring 2019 means (* p < 0.05; ** p < 0.01; *** p < .001) in a two-tailed test.
EHS = Early Head Start

Was amount of participation in WGT related to differences in the quality of caregiver-child interactions?

We examined the amount of caregivers’ participation in WGT in two ways: (1) a count of the number of pages on the WGT website that participants opened and (2) caregivers’ reports of how much their WGT PD provider contributed to their effectiveness.

Caregivers with greater use of the WGT website demonstrated stronger overall caregiver-child interactions in the spring, and stronger Support for Language and Literacy Development and Support for Cognitive Development (Exhibit 6). After accounting for fall scores, and caregiver, classroom, and program characteristics, caregivers who opened more pages had higher spring scores on the overall quality of caregiver-child interactions, Support for Language and Literacy Development, and Support for Cognitive Development. However, the use of the WGT website was not associated with Support for Social-Emotional Development in spring 2019.
Caregivers who reported their WGT PD provider more strongly contributed to their professional effectiveness demonstrated stronger Support for Cognitive Development in the spring (Exhibit 6). However, caregivers’ reports of their PD provider’s contribution to professional effectiveness were not associated with caregivers’ overall caregiver-child interaction quality, Support for Social-Emotional Development, or Support for Language and Literacy Development in the spring.

Exhibit 6. Caregivers with greater participation on the WGT website had stronger spring 2019 scores in overall caregiver-child interaction quality, Support for Language and Literacy, and Support for Cognitive Development

Visit the project website for more information about findings from the WGT field test including The We Grow Together Professional Development System: Final Report of the 2019 Field Test

Source: WGT Field Test 2018 and 2019 QCIT observations, Spring 2019 WGT Caregiver Feedback Survey, web user tracking data.

Notes: Models were estimated with full information maximum likelihood. Covariates included the fall 2018 score of the respective outcome, weeks between WCT start and the spring 2019 observation, caregiver education level, experience in ECE, Kessler-6 (mental health) scores, whether the classroom served toddlers, class/group size, caregiver:child ratio, ECE setting type, caregiver report of PD provider’s contribution to professional effectiveness, PD provider is supervisor, and PD provider dosage.

* Indicates a significant difference between fall 2018 and spring 2019 means (* p < 0.05; ** p < 0.01; *** p < .001) in a two-tailed test.
Lessons learned about infant and toddler caregivers’ changes in beliefs, knowledge, and practices from fall to spring

Lessons learned and areas for further investigation include the following:

- Caregivers reported a change in their ability to be effective in providing care for infants and toddlers, with an increase in their self-efficacy related to their WGT experiences. Caregivers’ perceptions that their PD provider supported their ability to be effective in their work was related to how they felt about their own effectiveness in spring 2019, after controlling for their reported effectiveness in fall 2018. Future research should investigate the PD provider strategies most associated with teacher beliefs about self-efficacy.

- The finding that caregivers changed their beliefs about children’s language development from fall 2018 to spring 2019 is consistent with information about the modules in which caregivers and PD providers chose to spend time. About 33 percent of caregivers reported they spent most of their time working in the language use module, with an additional 20 percent spending most of their time in the understanding language or literacy (10.4 percent each) modules.

- Caregivers participating in WGT improved in Support for Social-Emotional Development from fall 2018 to spring 2019. EHS caregivers demonstrated improvement in both Support for Social-Emotional Development and Support for Language and Literacy Development.

- Modules for language use and supporting regulation of behavior and emotions were among the top three selected in all types of settings. Both modules include practices related to responding to children’s cues. The caregiver-child relationships module (selected by many EHS caregivers) also had three practices for responding to children’s cues (social cues, emotional cues, and distress cues). Future research could help in understanding who benefits the most from different modules and whether there are prerequisite skills—for example, positive behavior management and responsiveness—needed for successful implementation of other practices.

- We found that the number of WGT pages opened was related to the overall quality of caregiver-child interactions, as measured by the QCIT. Future research could examine what measures of dosage are feasible to collect and provide more information about optimal dosage, frequency of coaching contact, and caregiver motivation in learning different strategies for supporting children’s development.

- Future research could also examine the interplay between change in knowledge/beliefs and professional development experiences. What types, sequences, and intensity of professional development are the most effective?

- There are several reasons why EHS caregivers might have benefited more from WGT. For example, their coaches are trained in practice-based coaching, they are trained in a relationship-based approach to caregiving, and they have developed PD plans. Other caregivers may have needed more time to adjust to the learning curve of WGT. Future research could examine the characteristics and contexts most facilitative of benefiting from WGT.
Box 4. Methods

Below we describe the measures used and analyses conducted for each research question. Data collection began as early as September 2018 and ended in July 2019.

Data collection and measures

Caregivers reported their beliefs about social-emotional, language and literacy, and cognitive development, as well as their overall beliefs about supporting development and knowledge about child development, as measured by the Early Head Start Family and Child Experiences Survey (Baby FACES) Beliefs about Development scale.19

We also measured the quality of caregiver-child interactions by observing caregivers’ classrooms using the Quality of Caregiver-Child Interactions for Infants and Toddlers (QCIT) measure. We examined the overall QCIT W-score20, 21 and three QCIT domain W-scores: Support for Social-Emotional Development; Support for Language and Literacy Development; and Support for Cognitive Development.

To measure caregiver self-efficacy, we asked questions from the Teacher Opinion Survey.22 Caregivers responded to questions about how they perceived their ability to make a difference in supporting the development and learning of infants and toddlers.

We examined how much caregivers participated in the WGT system in two ways: (1) a count of the number of pages they opened on the WGT website and (2) caregivers’ reports of how much their WGT PD provider contributed to their effectiveness.

Finally, we administered surveys to caregivers, which allowed us to gather information on caregiver, classroom, and program characteristics, including experience in early care and education (ECE), stress and well-being, class/group size, caregiver-child ratio, ECE setting type, and how the caregivers perceived their PD provider’s contribution to their professional effectiveness.

Analyses

The goal of the analyses was to describe whether caregivers changed in their beliefs, knowledge, and practices after WGT implementation, and, if so, how they changed. For each research question, we conducted analyses for the full sample and examined the results for the primary research questions by subgroups. Subgroups examined caregivers by setting type (i.e., center-based caregivers or FCC caregivers) and by affiliation (i.e., EHS caregivers or community-based caregivers). The four subgroups (center-based, FCC, EHS, and community-based) are not mutually exclusive.

Were there differences in caregivers’ knowledge and beliefs about caregiving and development from fall 2018 to spring 2019?

To determine whether there were differences in caregivers’ knowledge and beliefs about caregiving and development, we examined the means, standard deviations, and range of responses on the Baby FACES Beliefs about Development scale, and then conducted t-tests of means from fall 2018 to spring 2019.

Were there differences in caregivers’ self-efficacy from fall 2018 to spring 2019?

To determine whether there were differences in caregivers’ self-efficacy, we examined the means, standard deviations, and range of responses, and then conducted t-tests of means of the scores on the Teacher Opinion Survey from fall 2018 to spring 2019.

Were there differences in the quality of caregiver-child interactions from fall 2018 to spring 2019?

To answer whether there were differences in the quality of caregiver-child interactions, we examined the means, standard deviations, and range of responses, and then conducted t-tests of means of QCIT scores from fall 2018 to spring 2019.

Was participation in WGT related to differences in the quality of caregiver-child interactions?

We ran regression models of WGT web use and caregiver report of the PD provider’s support of their professional effectiveness predicting the quality of caregiver-child interactions (overall QCIT and three domain scores in different models), controlling for the fall 2018 score of the respective outcome, and caregiver and program characteristics. We standardized (z-score) the outcomes to have a mean of zero and a standard deviation of one, so coefficients could be interpreted as effect sizes.
Endnotes


15 Previously, the tool has been referred to as the Q-CCIIT.

16 All caregivers in the final analytic sample remained in a caregiver–PD provider pair, completed either the background survey or the fall 2018 QCIT observation, and remained in the study at least until March 1, 2019.

17 We used the classroom roster from the day of the QCIT observation to determine whether the majority of the children were younger than 18 months (infant classroom) or 18 months and older (toddler classroom).

18 This analysis adjusted for fall scores, and caregiver, classroom, and program characteristics.


20 W-scores are based on item response theory (IRT) results and are useful for examining growth. W-scores have a mean difficulty of 500 and properties that support criterion-referenced interpretation.


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Administration for Children and Families
U.S. Department of Health and Human Services

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