ECD measure

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Supporting Childcare Quality through Feedback and Texting

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Why is this study needed?

- We know that high-quality childcare leads to better outcomes

  o Evidence-based practices addressing teacher/child interactions, children's activities

- Observations and feedback routine for many childcare professionals

  o How to maximize investments in observations?

Tech-Enabled Professional Development

- Coaching is highly effective, but …

  - Resource-intensive
  - Not a fit for all childcare professionals
  - Amount and type of coaching needed varies by professional
  - Observations can make people uncomfortable

- How can tech help?

  - Virtual observations
  - Text-message based feedback and coaching

Nudge Theory

- Changes environment to change people's behaviors

  o "Nudges" refer to environmental cues to adopt or resist behaviors

- Text message nudges related to behavior change

  o A few recent studies show some positive, some mixed results (e.g., Hanno, 2023)

- Promising for use at scale – so need further testing

Study Questions

1) Can virtual observation and feedback lead to changes in use of evidence-based practices?

2) Does feedback lead to greater changes in EBP when educators set their own goals and receive text-based nudges?

3) What characterizes the "changers" who modify behavior more in response to cues?

   We hypothesized that feedback + goal-setting and text-based nudges would lead to greater change in EBP than feedback alone

Potential Moderators …

- Would psychological factors moderate results?

    o Self-efficacy and Agency

    o Belief in importance of evidence-based practices

    o Stress levels

- Hypothesized that educators who adopted practices in response to nudges might have different characteristics than those who didn't

Study Design

- Random assignment trial of Nebraska early childhood educators (goal of n=50)

- Survey of key characteristics and two observations for all participants:

  o Treatment: Feedback + goal setting and text-based nudges
  o Control: Feedback only

- Repeat observation after 12 weeks

  o 46 total at Time 1 and Time 2
  o No attrition among treatment, but notable attrition among controls

Brief Early Childhood Quality Inventory (BEQI) Together in Practice

Flexible use

Adaptable items; Use for monitoring data, combined with professional development, or program evaluation

Goal-focused

Tracks how ECCE is doing against goals;
Uses behavior change and human-centered design to support teachers increase evidence-based practices

Tech-enabled

App and text messaging system for data feedback loops

BEQI looks at **evidence-based practices** and classroom characteristics in key areas

PLAY-BASED LEARNING
How does the educator use play-based activities and materials to engage children in learning?

LEARNING THROUGH CONVERSATIONS
How does the educator use conversation and dialogue to facilitate children's learning?

PROMOTING STRONG RELATIONSHIPS
How does the educator interact with children to foster social and emotional development?

SAFE & STIMULATING ENVIRONMENTS
How is the learning space arranged and what are the health and safety features of the environment?

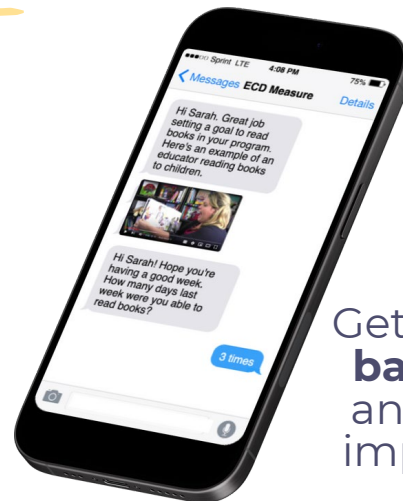+ *supplementary modules on engaging families and teacher's perceptions*

How does BEQI Together in Practice work?

Start with **a virtual observation** to gather data on interactions and practices and understand educator priorities for quality

Get **timely and strengths-based feedback**

Get **regular text-based nudges** and support to improve quality

8 EBPs (Binary Yes/No)

1. Creating Time/Space for Children to Read or Look at Books on Their Own

2. Reading Books to Children

3. Talking with Children about Emotions

4. Working 1:1 with Children

5. Connecting Learning Experiences to Children's Everyday Lives

6. Integrating Math Concepts into Activities and Conversation

7. Integrating Science Concepts into Activities and Conversation
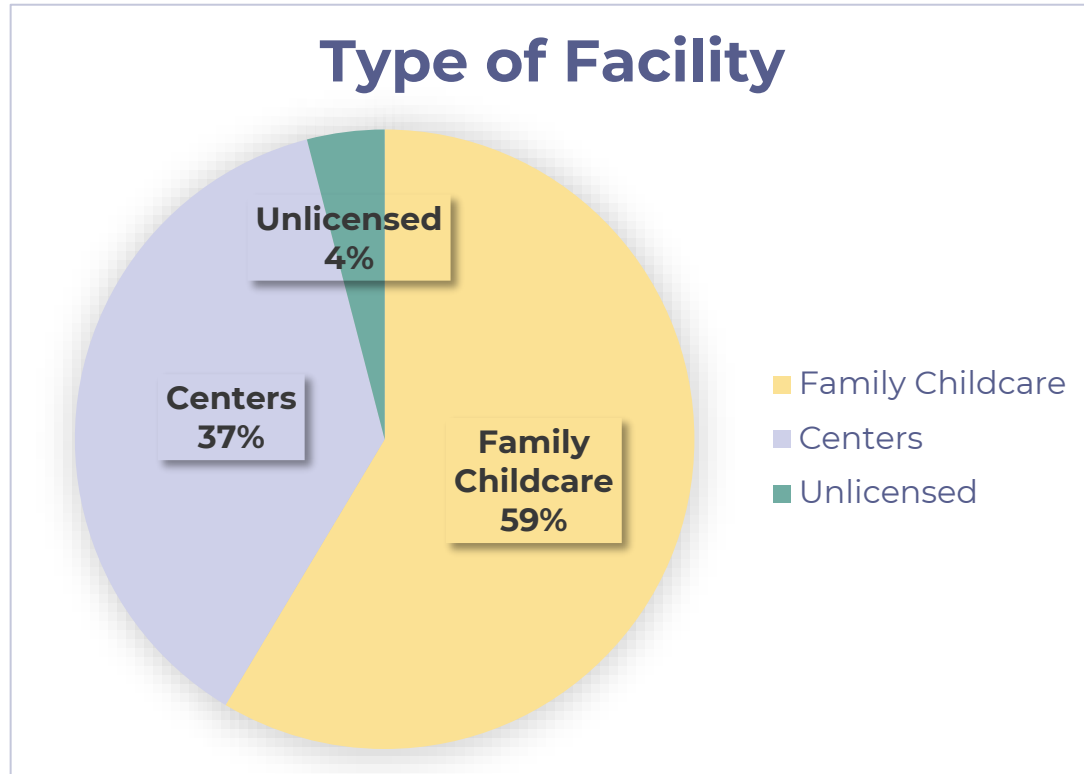
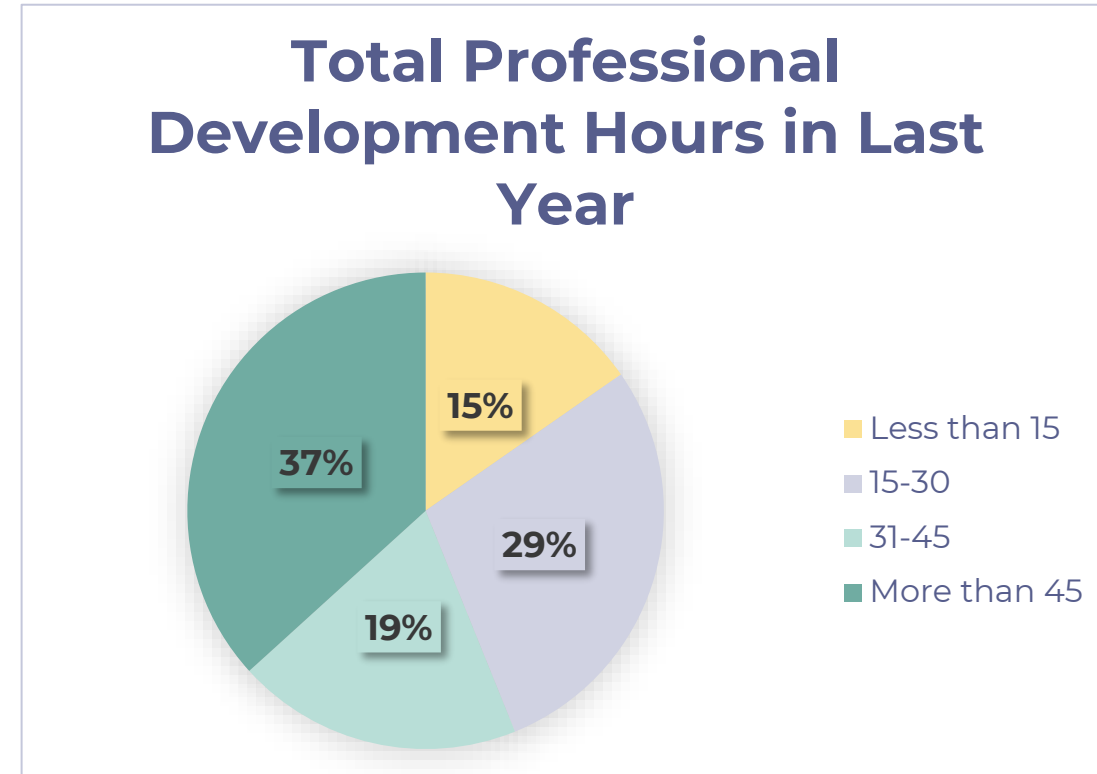8. Integrating Literacy Concepts into Activities and Conversation

Participant Characteristics

- 85% identified as white, 2% Black, 13% other

- Distributed across community type

  o 24% rural, 32% small town, 10% suburb and 32% city

- 59% participating in SUTQ and 90% accepting subsidies

- 44% with college degree or more; 66% with less than college degree

Participant Characteristics

Type of Facility

- Unlicensed 4%
- Centers 37%
- Family Childcare 59%

Legend:
- Family Childcare
- Centers
- Unlicensed

- *Most in Family Childcare Homes*

Total Professional Development Hours in Last Year

- 15%
- 29%
- 19%
- 37%

Legend:
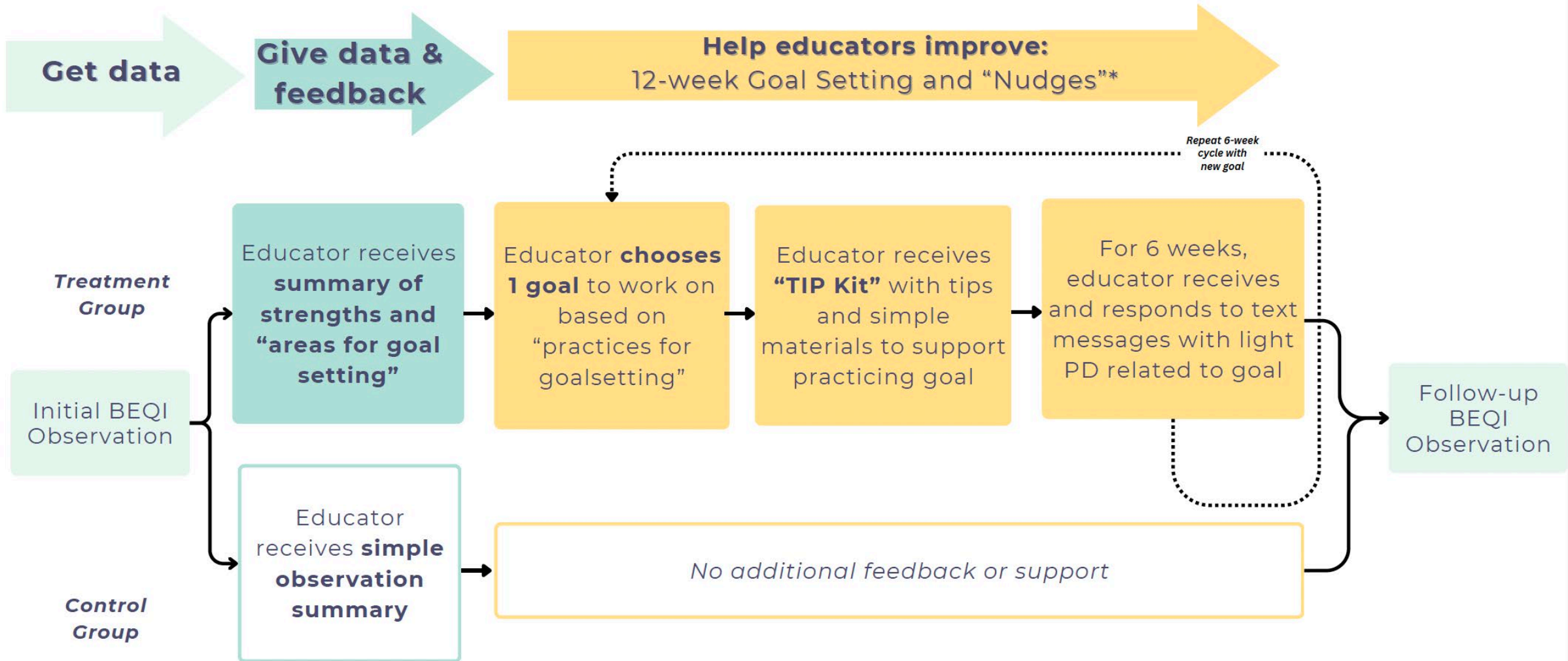- Less than 15
- 15-30
- 31-45
- More than 45

- *Significantly more PD hours for family childcare than centers*
- *Slightly higher levels of education for centers*
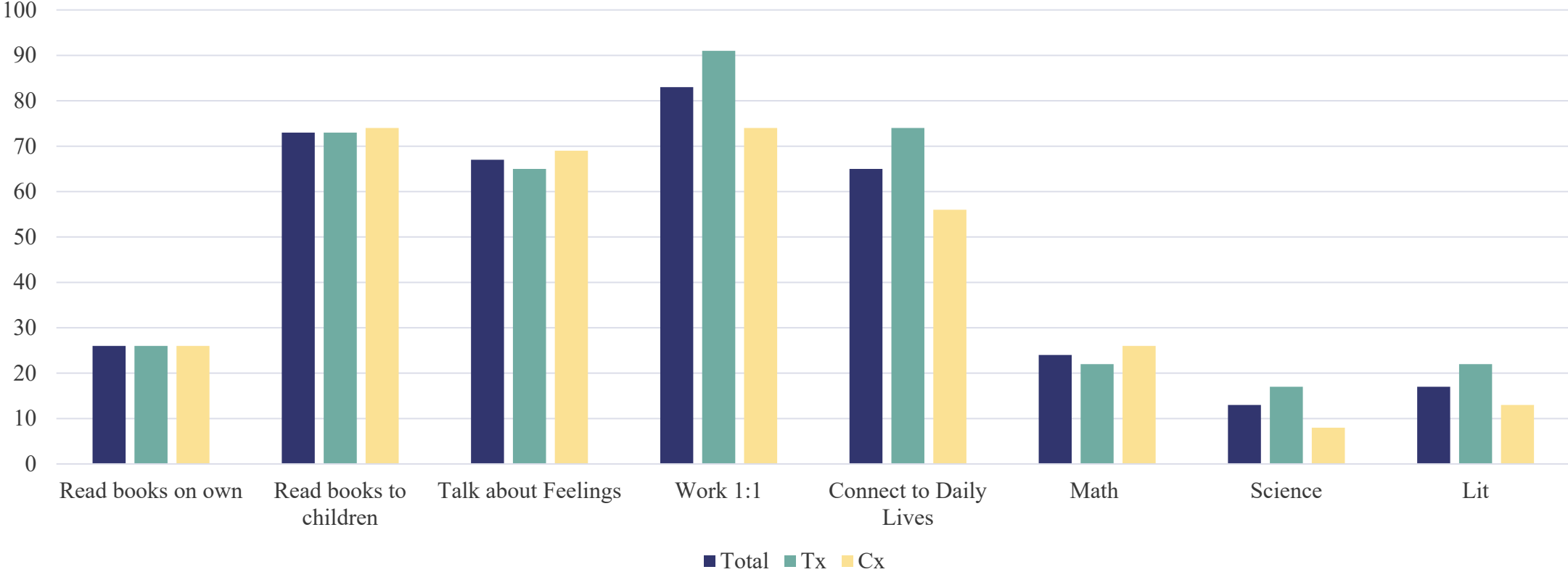
Randomization

- Randomized after participants took the initial survey and agreed to observation

  o Of the 86 who completed the survey, only 46 agreed to the observation

- Randomization led to no significant differences on participant characteristics BUT one

  o Treatment group was more likely to have received an observation in the past year (65% treatment vs. 35% control)

BEQI Intervention Summary

Get data → **Give data & feedback** → **Help educators improve:** 12-week Goal Setting and "Nudges"*

Repeat 6-week cycle with new goal

Treatment Group

Initial BEQI Observation

Educator receives **summary of strengths and "areas for goal setting"** → Educator **chooses 1 goal** to work on based on "practices for goalsetting" → Educator receives **"TIP Kit"** with tips and simple materials to support practicing goal → For 6 weeks, educator receives and responds to text messages with light PD related to goal → Follow-up BEQI Observation

Control Group

Educator receives **simple observation summary** → *No additional feedback or support*

Time 1 Observation Results

% Observed in Each Behavior

Control Group

- Received list of 8 EBP
- Reported only whether it was observed or not observed
- Always listed at least 4 positive behaviors (if they didn't have 4 from our list, we used other BEQI items)

BEQI • Brief Early Childhood Quality Inventory
Observation Summary

Thank you for participating in an observation last week. We appreciate your willingness to contribute.

Below you will find a brief summary of our new observation measure. We are still testing this measure and we are grateful for your partnership. We understand that you may not do every activity on this list every day and we appreciate all of the good things you do every day with children!

We're sending along a gift card as a token of our appreciation. Our research team will be reaching out in a couple of months.

Provider Name: **Date of Observation:**

Below is a summary of what we observed. Each of these activities can support children's learning and development.	Yes	No
1. Children work one-on-one with you	X	
2. You talk about feelings with children	X	
3. You read storybooks to children	X	
4. You lead a science activity with children		X
5. Children read books on their own		X
6. You connect activities to children's daily lives		X
7. You give children choice in how to carry out activities	X	
8. You lead a literacy activity with children		X

Treatment Group

- Received list of 6 strengths
- Received 3 areas for feedback
- Always listed 2x more strengths than areas for goal setting

BEQI • Brief Early Childhood Quality Inventory
Observation Summary

Provider Name _____   Date of Observation: _____

Your Strengths
Congratulations! We observed you doing some great things to support your children learn and develop.

1. **You read storybooks to children**
By reading aloud, you are helping foster a joy of reading as it presents books as sources of exciting experiences and helps to develop language and literacy skills.

2. **You talk about feelings with children**
You are helping children learn to manage their feelings and impulses during their early years and to put names to their emotions to help better express themselves.

3. **You integrate science concepts into your program**
Incorporating early science activities such as plants, seasons, color mixing, cause-effect helps children with higher level-learning by asking questions, making predictions, and exploring properties.

4. **You connect activities to children's daily lives**
When you connect learning to children's everyday life, you are helping them practice higher order thinking.

5. **You give children choice in how to carry out activities**
By giving children choice in how they do activities, you are helping them learn by creating their own understanding of how things work.

6. **Children in your program interact positively with each other**
Through promoting a community of positive relationships, you are helping children to connect with others, build healthy friendships, and support self-regulation of their emotions.

Areas for Goalsetting

We recognize that in a 90-minute observation, we may not see everything, but here are some areas we didn't see during the observation, which could be areas for setting goals in your daily program.	Why is this important?
1. You could help children read or look at books on their own	When children read or look at books on their own, you help them set the foundation for early literacy and a love for reading.
2. You could incorporate literacy concepts into your daily practice.	Working with kids on letter identification, phonics, writing, rhyming, etc. can help get children become ready for learning to read and write.
3. You could work one-on-one with children	By giving one-on-one time and feedback to children, you are helping to stimulate the child's thinking, problem-solving and overall learning.

What's next?
We appreciate you participating in the observation.

Over the next few months, we will be working with you through text messages. We'll be helping you think about strategies and ways to regularly incorporate these practices into your daily work to support the children in your program. As a token of appreciation for responding to our texts, we will be providing an additional $50 gift card at the end of the program.

Please reach out to info@ecdmeasure.org with any questions.

Treatment Group received "TIP Kits"

Help Children Read or Look at Books On Their Own

This boy is relaxed and comfortable while he explores a book by himself.

Why should children look at books on their own?

The foundation for literacy begins early for children that regularly explore books. Throughout early childhood, children need to have multiple opportunities to look at books on their own. Children that can read the pictures or recall a story that has been read to them are beginning to show a love for reading. If a child reads for pleasure, they are on the way to becoming a reader for life. When children have access to and can choose books to "read" or look at independently, they will want to read.

How can I put this into practice?

The first step in promoting independent book exploration is to set up access in a cozy place:

✓ **Create comfortable and inviting spaces in different parts of your program for children to cozy up with a book.**

✓ **Make the book reading area inviting with comfortable furniture. Add homelike touches such as: pillows, rugs, low lighting, plants, stuffed animals, or dolls.**

✓ **Put books that go with your current theme or topic in a special display or basket.**

✓ **Make sure books are in good condition, right for your age range of children and of interest to all.**

✓ **Rotate books in this area so that they are fresh.**

STRATEGIES TO TRY

Easy access:
Place books down low and visible so that children have access. Think about putting books or magazines in other play areas.

Theme-based books:
Put books that go with your current topic in an inviting and seen place.

Set aside time:
Make time to invite children to choose books on their own. Notice out loud to them as they are reading.

Inviting:
Make the book area inviting and cozy. Think of soft and beautiful places that say, "Come curl up with a book!"

Variety of books:
Offer a variety of books, including fiction and non-fiction.

Home languages:
Make sure that there are books in every child's home language. If not available, ask parents for help.

Share read aloud books:
After reading storybooks to the group, make those books available for choice.

Treatment Group received text-message nudges and support on goals

Week (2 cycles)	Text Message Nudges and Support to Treatment Educators
1	• Receive Observation Summary; • Select target practice as goal, based on observed areas for improvement • Receive weekly tip on why target practice is important for helping children to develop
2	• Complete weekly check-in survey • Receive weekly tip on how to incorporate selected goal into daily program
3	• Complete weekly check-in survey • Receive weekly tip on how to use materials from the TIP kit to incorporate target practice into daily program
4	• Complete weekly check-in survey • Receive weekly tip on other strategies to incorporate target practice into daily program
5	• Complete weekly check-in survey • Receive weekly tip with brief video clip example of other educators doing the target practice
6	• Complete final survey on the 6-week goalsetting

Time 2 Observation Results

% Observed in Each Behavior
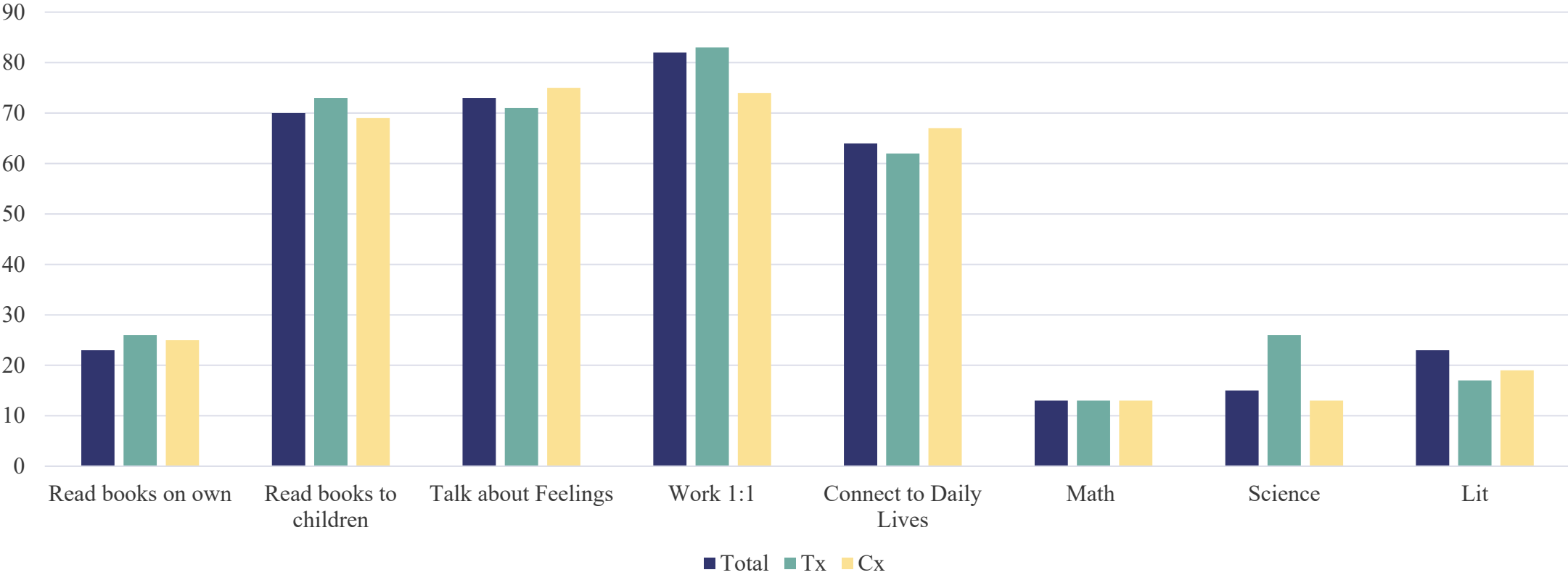
Results

Frequency of practices observed at Time 1 and Time 2

Observed potential target practice	Frequency of practice observed (n=39)			
	Time 1		Time 2	
	Control Group	Treatment Group	Control Group	Treatment Group
Work 1-on-1	13	21	13	19
Read storybooks aloud	12	17	11	16
Talk about feelings	12	15	12	15
Connect to daily lives	9	17	10	13
Incorporate math concepts	3	5	2	3
Children read/look at books on own	2	6	4	5
Incorporate literacy concepts	2	5	3	6
Incorporate science concepts	1	4	2	4

Note. Given the randomization of feedback to prioritize strengths-based feedback, not all educators received feedback on all eight practices.

Table 3 below shows whether educators received feedback on specific practices.

Can virtual observation lead to changes in EBP?

- YES!

- Main outcome variable = % of practices changed for each educator from Time 1 to Time 2

- Both groups showed some improvement in EBP …

  - Much greater change for Treatment Group

  - But also saw some change in Control Group

Do educators who set their own goals/get nudges change more?

% Showing Improvement In Targeted Behaviors

Calculated for two selected goal behaviors in Treatment Group

Eta squared = .32

Calculated across three behaviors on which feedback was received in Control Group

70
60
50
40
30
20
10
0

Time 1   Time 2

— Tx — Cx

Feedback and Goal Selection

- Some practices were more likely to changed than others

- Integrating math, science and literacy were most likely to be addressed by Treatment but not Control Groups

Potential target practice	Frequency of feedback provided on this practice at Time 1 [a]		Goal Selection Rate for Treatment Group [e]	Rate of addressing feedback [b]		
	Control Group [c]	Treatment Group [d]		All Educators	Control group Educators [f]	Treatment group Educators [g]
Work 1-on-1	6	1	100%	100%	100%	100%
Read storybooks aloud	3	5	40%	44%	15%	75%
Talk about feelings	3	5	80%	71%	100%	60%
Connect to daily lives	4	5	40%	70%	80%	60%
Incorporating math concepts	10	11	64%	50%	0%	91%
Help children read/look at books	12	15	67%	23%	18%	27%
Incorporating science concepts	11	14	71%	44%	15%	75%
Incorporating literacy concepts	13	13	77%	39%	18%	58%

# What characterizes the "changers"?

- Greatest improvement in 8 target practices among …

  - Educators with the least amount of professional development in the last year (regardless of treatment or control group membership)

  - Educators with more experience showed marginally less improvement

- This type of intervention may be especially useful for educators with limited exposure to professional development

- No moderation effects based on efficacy, stress, other characteristics

What did we learn about behavior change?

Self-reports on "days that the goal was achieved" create insight into patterns of behavior change

 Tended to see increases over time

Note. Educators set goals on Weeks 1 and 7 of intervention and reported on goals
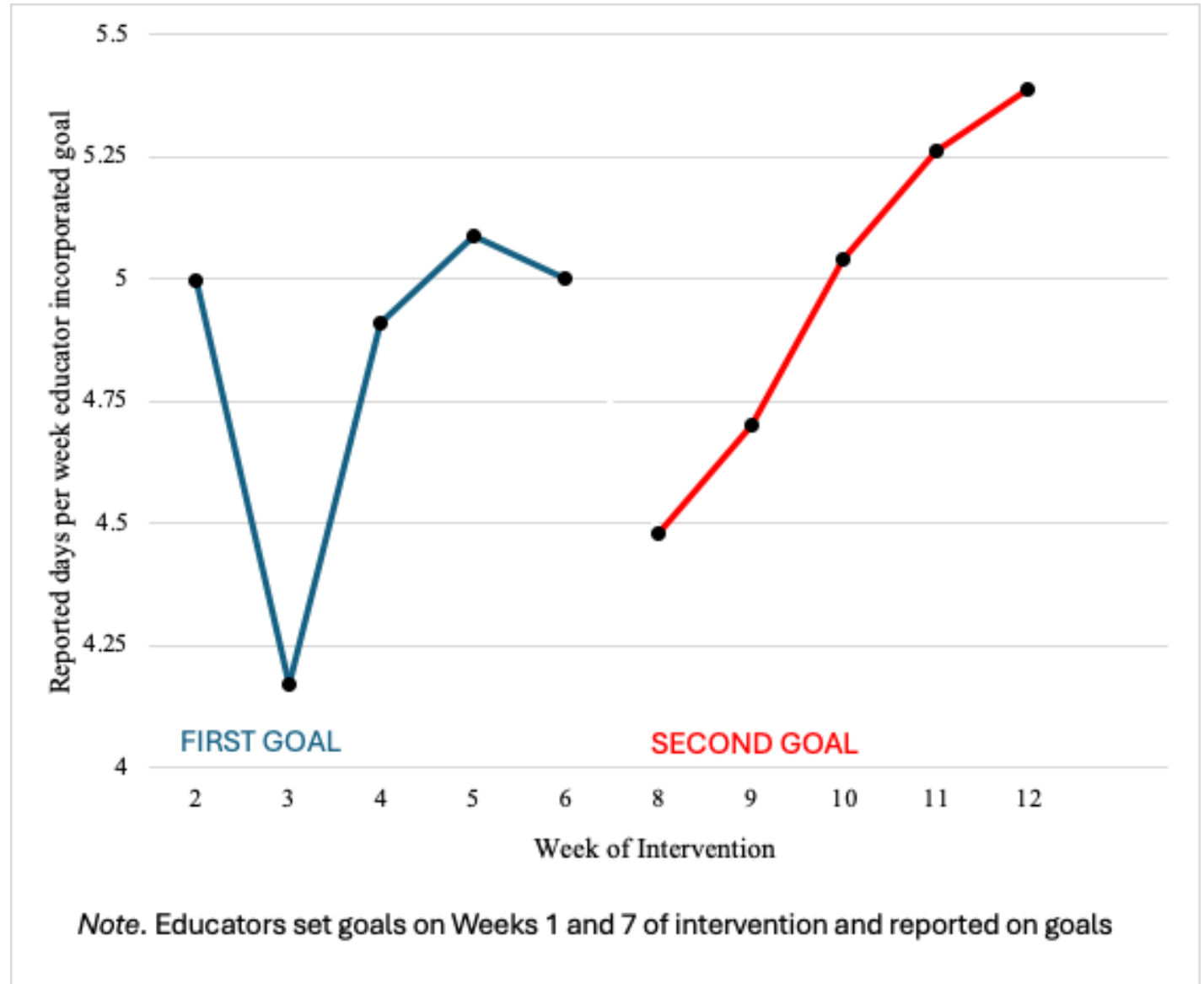
Educator Reviews …

- Educators who participated in the Treatment Group provided feedback on the intervention

  o 70% agreed or strongly agreed it was good for the children they cared for

  o 73% would recommend to another educator

- Liked the ability to set their own goals and were very consistent in responding to text messages

- Zero attrition in Treatment Group

Implications

- *How can information from this study inform or advance early childhood practice?*

  o Using virtual observations to facilitate goal-setting, and following up via texting, can lead to changes in practice

- *How can information from this study inform or advance early childhood public policy?*

  o State policies should consider light-touch methods for supporting behavior change

- *How can lessons from practice or policy inform this line of research?*

  o This research was designed in response to feedback from childcare providers on the need for light-touch interventions and easy-to-understand measurement tools

Conclusions

- Simple, inexpensive virtual observation + text messaging can lead to behavior change

  o   Selecting and targeting specific behaviors can be effective

  o   Effect sizes reasonable for low-touch intervention

- Feedback alone less valuable than following up with tips and text messaging

- Important to replicate with larger sample