Exploring the impact of a story-based teacher training programme on language and early literacy in 4- and 5-year-olds

Little Stars in the classroom: Did teaching practices change?

This is the third in a series of five research briefs that explore the impact of Little Stars, story-based teacher training programme on language and early literacy in 4- and 5-year-olds. This brief focuses on whether resource-based teacher training led to take-up of the programme as intended, and the extent to which teaching practices changed through implementing the programme.

We used Kirkpatrick's model[1] and focused on Level 3 (behavioural changes) to explore how teachers were using the programme and how the training translated into actual classroom practice.

How were teachers using the programme?

The trainers visited the 26 teachers in the intervention group in July 2022. As trainers could not observe teachers doing all 10 activities in the two-week cycle, we asked teachers to do one of the main teacher-led activities: *Storytelling, Sequence pictures* or *Reading a Big Book* and a child-led activity: *Drawing and emergent writing*[2].

Using a rating scale of 1–5, the trainers rated the teachers on the questions below. It was encouraging to see that 75% of teachers achieved an overall score of 4–5. Of the remaining 25% teachers, 17% achieved a score of 3, and 8% achieved a score of 1–2.
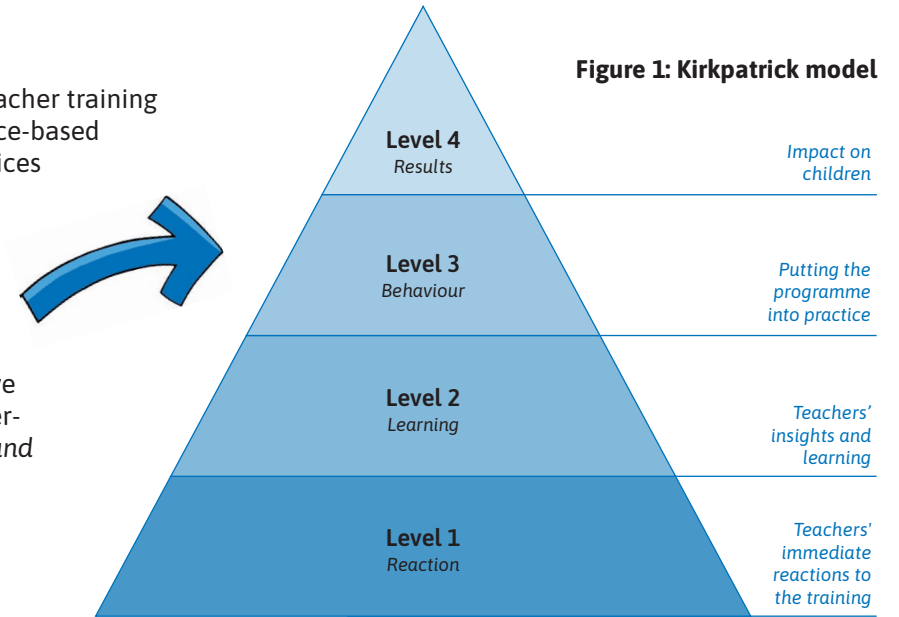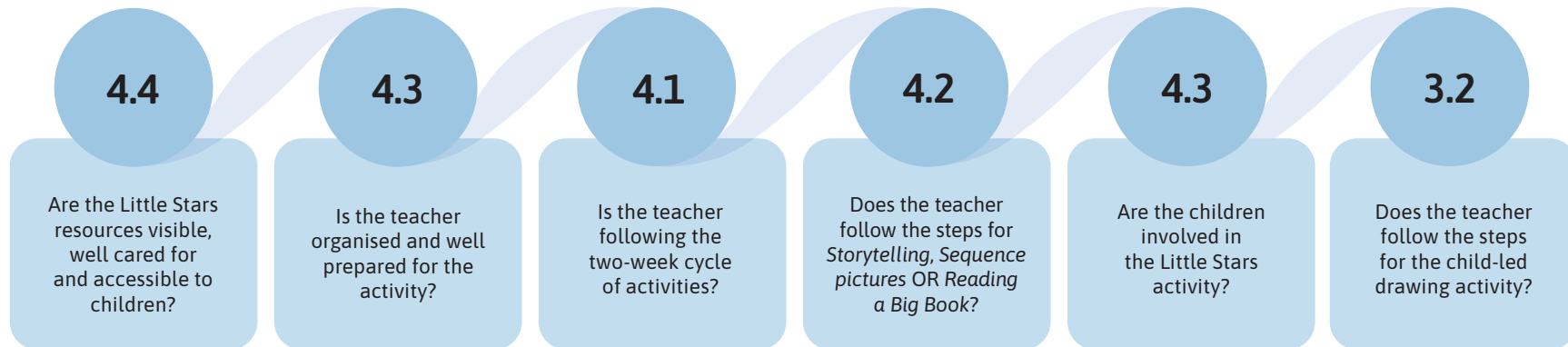
Figure 1: Kirkpatrick model

Level 4 — Results	*Impact on children*
Level 3 — Behaviour	*Putting the programme into practice*
Level 2 — Learning	*Teachers' insights and learning*
Level 1 — Reaction	*Teachers' immediate reactions to the training*

Figure 2: Average ratings for questions related to programme implementation (rating scale = 1–5)

4.4	4.3	4.1	4.2	4.3	3.2
Are the Little Stars resources visible, well cared for and accessible to children?	Is the teacher organised and well prepared for the activity?	Is the teacher following the two-week cycle of activities?	Does the teacher follow the steps for *Storytelling, Sequence pictures* OR *Reading a Big Book*?	Are the children involved in the Little Stars activity?	Does the teacher follow the steps for the child-led drawing activity?

[1] Kirkpatrick, D., & Kirkpatrick, J. (2006). *Evaluating training programmes: The four levels.* Berrett-Koehler Publishers.

[2] In the free drawing activity, children draw their favourite part of the story and a teacher writes down what they say about their picture. Less than half of the teachers did this activity, with only a few teachers writing down what the children said about their drawings. A quarter of the teachers did a teacher-led drawing activity instead and there were no drawing activities in a third of the classes.

Observing teaching in the classroom

In addition to the class visits by the Little Stars trainers, observers visited teachers in February and August 2022. They spent a morning in each classroom, observing the teacher and children, the classroom environment and teaching and learning resources.
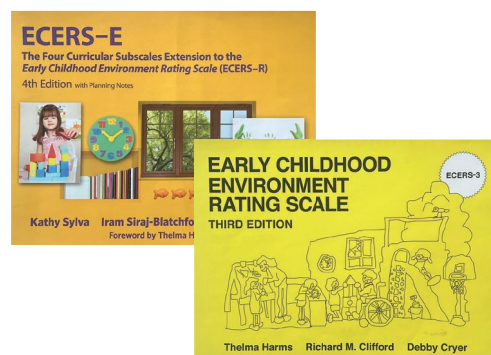
Observers used the Early Childhood Environment Rating Scales (ECERS) to guide their observations. We had selected two of the six subscales of the ECERS-3[3] (*Language and Literacy*, and *Learning Activities*), and one of the four subscales of the ECERS-E[4] (*Literacy*).

For each item, the ECERS guidelines provide indicators that the observer should look for. The observer ticks each indicator they observe and calculates a score for each item on a seven-point scale: inadequate (1–2); minimal (3–4); good (5–6); excellent (7). Some indicators are easy to achieve, while others require more resources and a more skilled teacher.

For example, here are some of the indicators for the ECERS-E item *Adult reading with the children*:

- Adults rarely read to the children.
- Adults reading with children daily.

- There is some involvement of the children during reading times (for example, children are encouraged to join in with repetitive words and phrases in the text, adult shares pictures with the child/ren or asks simple questions).
- Children take an active role during reading times, and the words and/or story are usually discussed.
- Children are encouraged to think about and consider 'what if' questions, and/or link the content of the book to other experiences.

As you can see from the example above, the focus is on storybook reading and there are no indicators for oral storytelling. The Little Stars programme supports oral storytelling, and so we created additional items for ECERS-3 and ECERS-E by replacing 'reading books' with 'telling stories'. Teachers could get credit for either story book reading or oral storytelling.

Figure 3: Early Childhood Environment Rating Scales (ECERS)

ECERS Rating Scales

ECERS-3: Language and Literacy

- Helping children expand vocabulary
- Encouraging children to use language
- Staff use of books with children
- Encouraging children's use of books
- Becoming familiar with print

ECERS-3: Learning Activities

- Fine motor skills
- Art
- Music and movement
- Blocks
- Dramatic play
- Nature/science
- Math materials and activities
- Maths in daily events
- Understanding written numbers
- Promoting acceptance of diversity

ECERS-E: Literacy

- Print in the environment
- Book and literacy areas
- Adult reading with the children
- Sounds in words
- Emergent writing/mark-making
- Talking and listening

[3] Harms, T., Clifford, R. M., & Cryer, D. (2014). *Early Childhood Environment Rating Scale, third edition (ECERS-3)*. New York, NY: Teachers College Press.

[4] Siraj-Blatchford, I., Taggart, B., & Sylva, K. (2010). *ECERS-E: The Early Childhood Environment Rating Scale Curricular Extension to ECERS-R (4th ed.)*. Trentham Books Ltd.

How did the programme affect teaching practices?

Before the training

The baseline observation average scores were notably low, with no item averages reaching 4 or higher.

- For one-third of the items, teachers scored 3, while for the remaining items they scored between 1 and 2.
- There was a wide range of scores for all items, except for *Dramatic play* and *Nature/science* which had a range of 1–2.

It is important to note that COVID restrictions were only lifted in late 2021, which may explain why most observers reported no dramatic play. Children were also new to the class, and this could have influenced their levels of interaction and engagement.

After the training

We compared February observation scores (Time 1) with August scores (Time 2), and found a significant improvement from Time 1 to Time 2 in the average scores on all three subscales for both language groups (there was a clear effect of time and no effect of language).

It was also evident that the intervention group had improved more than the control group on all three ECERS subscales. For the *Language and Literacy* and *Learning Activities* subscales, the improvement was statistically significant. For the *Literacy* subscale, the difference was not significant.

To explore overall improvement, we analysed the average scores for each of the items at Time 1 and Time 2. For some items, the teachers in both groups had improved over time (for example, *Dramatic play*). However, we wanted to see which items had not changed much in the control group but showed a big change in the intervention group. To do this, we looked at each indicator and counted the number of 'yes' responses given by observers.

We did not expect improvements on items unrelated to the Little Stars programme (for example, *Blocks*) or that require additional resources. However, we did expect teachers in the intervention group to perform better on items related to language and literacy and interaction between teachers and children.

We found that in the intervention group, the average score improved by 1 point on 15 out of 21 items (compared to 4 out of 21 items in the control group). Figure 4 shows that at Time 2, teachers in the intervention group had a higher percentage of scores of 3–4, and a lower percentage of scores of 1–2.

Figure 4: Analysis of average scores for intervention and control groups
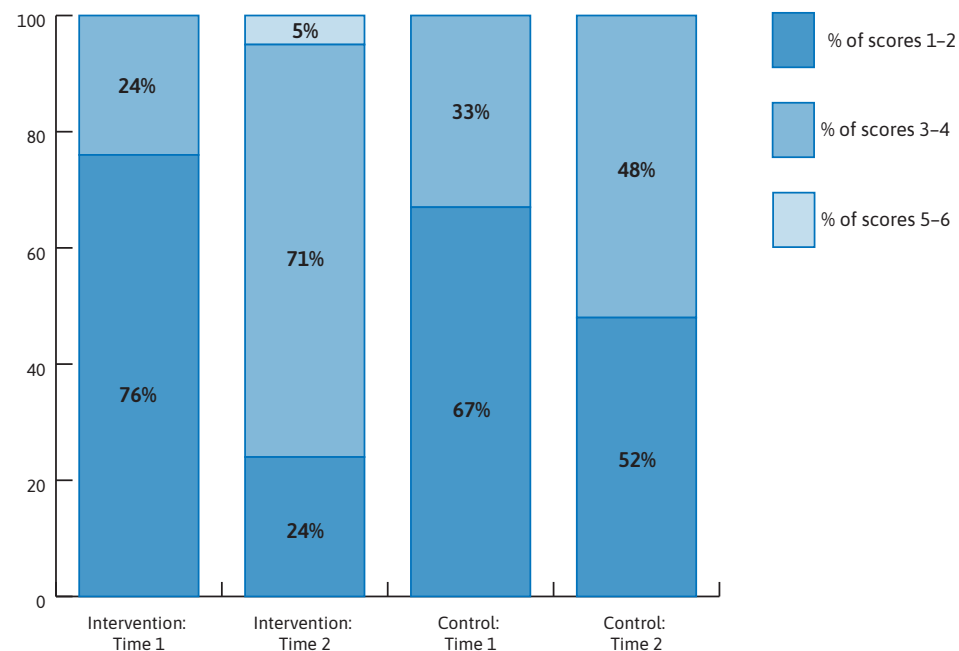
Disappointingly, the intervention group did not show improvement in the item *Emergent writing/mark-making*. Although children at most centres had access to paper or materials for drawing, very few observers ticked the following indicators: 'Children observe their teachers writing down what they say'; 'Children encouraged to try writing to communicate'; 'Adults draw attention to the purpose of writing'.

Some indicators showed unexpected improvements. For example, it was encouraging to see shifts in 'maths talk' on the following items: *Maths materials and maths activities* ('Staff ask children questions about maths materials/ activities that stimulate reasoning') and *Maths in daily events* ('Staff use 'maths talk' referring to daily events during large group time'). Although the Little Stars programme does not focus on maths, teachers are encouraged to add maths words to everyday activities and maths vocabulary is introduced through stories, with three of the stories having a specific maths theme.

More information about the Little Stars training programme and materials can be found at: www.wordworks.org.za.

What improved the most?

Items	Indicators
Helping children expand vocabulary	• Words that describe people, places, things and actions are sometimes used in a meaningful context. • Staff sometimes correctly explain the meanings of unfamiliar words in a way that children can understand.
Encouraging children to use language	• Many staff-child conversations during gross motor free play and routines.
Staff use of books (stories) with children	• The majority of the children appear to be engaged for most of the time when books (stories) are used. • All children participating in the activity are actively engaged during each book (story) time. • Staff show some/much interest and enjoyment in books (stories). • Staff and children discuss content of a book (story) in a way that engages children.
Encouraging children's use of books	• Books organised in reading centre, comfortable furnishings.
Print in the environment	• A few labelled objects or items are present and easily visible. • Discussion of environmental print takes place and often relates to items of personal interest to children.
Book and literacy areas	• Book area is comfortable (rug and cushions or comfortable seating) and filled with a wide range of books of varied style, content and complexity.
Adult reading (telling a story) with children	• Children take an active role during reading (storytelling) times and the words and/or story are discussed. • There is discussion about print and letters as well as content. • There is support material for children to engage with stories by themselves.
Sounds in words	• The initial sounds in words are brought to the attention of children.
Talking and listening	• Children encouraged to answer questions in a more extended way (more than one-word answers).
Art	• Some individual expression with art materials is observed as children use art materials, or art is displayed (for example, children allowed to do free drawing).

Significance and implications of the results

The results from trainer visits and classroom observations indicated the following:

• Teachers from both the Afrikaans and isiXhosa groups scored similarly (there were no significant differences). This suggests that the programme take-up was not specific to one context.

• There was a range of scores on all measures. Only two of the teachers in the intervention group achieved low scores on their use of the programme, which suggests good programme take-up overall.

• On average, the intervention group teachers' quality of teaching improved more than that of teachers in the control group, and on two of three subscales these improvements were significant.

• The intervention group showed a greater decrease than the control group in the percentage of items with an average score in the lowest range. They also showed a greater increase in the percentage of items that improved by one point on the scale.

• Analysis of items suggested that:
  – Changes in average scores were driven by changes in items related to literacy and language, with some positive shifts in indicators that related to 'maths talk'.
  – Teaching practices did not shift as much as we had expected for *Drawing and emergent writing*.

These findings indicate good take-up of the Little Stars programme in two contexts (Paarl and Khayelitsha). They show that resource-based training is effective in improving teaching practices and interaction in the classroom.