Table 1. Overview of the parental component of the Happy Talk program over the 12 weeks of intervention

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Term 1** | **Session 1** | **Session 2** | **Session 3** | **Session 4** |
| ***Listening*** | *Listening rules and games* | *Listening rules and games* | *Listening rules and games* | *Listening rules and games* |
| ***Implementation of Strategies*** | *Modelling* | *Expanding*  | *Balancing questions and comments* | *Practice strategies during free play* |
| ***Phonological awareness*** | *Rhythm* | *Rhythm* | *Rhythm* | *Rhythm* |
| **Term 2** | **Session 5** | **Session 6** | **Session 7** | **Session 8** |
| ***Listening*** | *Listening rules and games* | *Listening rules and games* | *Listening rules and games* | *Listening rules and games* |
| ***Learning New Words*** | Body parts | Prepositions | Categorization | Sub-categorization |
| ***Phonological awareness*** | *Blending compound words* | *Blending compound words* | *Blending syllables* | *Blending syllables* |
| **Term 3** | **Session 9** | **Session 10** | **Session 11** | **Session 12** |
| ***Listening*** | *Listening rules and games* | *Listening rules and games* | *Listening rules and games* | *Listening rules and games* |
| ***Sharing Books and Stories*** | *Balancing Questions and Comments* | *Pretend Play through Stories* | *Bringing Books Alive*  | *Mindmaps* |
| ***Phonological Awareness*** | *Segmenting Syllables*  | *Segmenting Syllables* | *Segmenting Syllables* | *Segmenting Syllables* |

## Models with additional adjustment for pre-school

Table 2. PLS5 score distributions and estimated effects of the intervention on child language.

|  |  | Means (SD) | Estimated difference in means (95% CI) |
| --- | --- | --- | --- |
| Treatment arm | n | Baseline | Post-intervention | Difference | Effect estimate | Effect estimate (standardized) | p |
| Control PLS5-AC | 20 | 92 (11) | 85 (12) | -6.3 (8.8) | 9.92 (2.5 to 17.3) | 0.74 (0.19 to 1.3) | 0.012 |
| Intervention PLS5-AC | 38 | 88 (14) | 91 (14) | 2.9 (12) | NA | NA | NA |
| Control PLS5-ES | 20 | 89 (12) | 90 (15) | 0.55 (8.8) | 5.16 (-1.73 to 12) | 0.37 (-0.13 to 0.87) | 0.149 |
| Intervention PLS5-ES | 34 | 92 (11) | 95 (14) | 3.3 (8.8) | NA | NA | NA |
| Control PLS5-Total | 20 | 90 (11) | 87 (13) | -3.2 (8.4) | 7.8 (1.5 to 14.1) | 0.58 (0.11 to 1.04) | 0.019 |
| InterventionPLS5-Total | 34 | 90 (12) | 93 (14) | 3.1 (8.3) | NA | NA | NA |

Table 3. PedsQL and CHU9D distributions and estimated effects of the intervention on child quality of life.

|  |  | Median (IQR) |  | Mean (SD) |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Outcome/Arm | n | Baseline | End of study | Difference | Estimated Odds Ratio (95% CI) | p-value |
| PEDS Psychosocial |  |  |  |  |  |  |
| Control  | 16 | 95 (89 to 100) | 94 (93 to 100) | 2.6 (10) | 0.65 (0.21 to 2) | 0.448 |
| Active  | 34 | 97 (94 to 100) | 95 (88 to 100) | -3.9 (9.4) |  |  |
| PEDS Physical |  |  |  |  |  |  |
| Control  | 16 | 93 (90 to 97) | 89 (84 to 92) | -7.1 (11) | 1.7 (0.59 to 4.9) | 0.326 |
| Active  | 34 | 92 (83 to 96) | 89 (83 to 96) | -1.3 (10) |  |  |
| PEDS Total |  |  |  |  |  |  |
| Control  | 16 | 93 (89 to 96) | 91 (85 to 94) | -2.6 (7.3) | 1.2 (0.44 to 3.4) | 0.706 |
| Active  | 34 | 92 (89 to 96) | 91 (85 to 96) | -2.4 (7.8) |  |  |
| CHU9D |  |  |  |  |  |  |
| Control  | 17 | 0.96 (0.95 to 1) | 0.96 (0.91 to 0.98) | -0.023 (0.069) | 0.89 (0.31 to 2.6) | 0.835 |
| Active | 35 | 0.96 (0.91 to 1) | 0.95 (0.88 to 0.97) | -0.028 (0.075) |  |  |

Caption: Estimates are odds ratios comparing the odds of achieving a higher score in the active arm vs the control (adjusted for baseline scores), so that values > 1 suggest a beneficial effect. PedsQL = The Pediatric Quality of Life Inventory, PEDS Physical = The Pediatric Quality of Life Inventory Physical Functioning, PEDS Psychosocial = The Pediatric Quality of Life Inventory Psychosocial Functioning, PEDS Total = The Pediatric Quality of Life Inventory Total, CHU9D= Child Health Utility instrument.

Table 4. Maternal Responsive Behaviours Coding Scheme outcome distribution and estimated effects of the intervention on parent outcomes.

|  |  |  | Mean SD |  |  | Estimated difference in means (95% CI) |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Outcome/Arm | n | Baseline | End of study | Difference |  | Effect estimate\* | Effect estimate\* (standardized) |  | p-value |
|  |  |  |  |  |  |  |  |  |  |
| Expansions |  |  |  |  |  |  |  |  |  |
| Control  | 16 | 5.5 (3.2) | 4.6 (3.8) | -0.94 (3.4) |  | 1.83 (-0.50 to 4.16) | 0.46 (-0.13 to 1.04) |  | 0.13 |
| Happy Talk | 36 | 5.2 (3.8) | 6.3 (4.2) | 1.1 (5.0) |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Imitations |  |  |  |  |  |  |  |  |  |
| Control  | 16 | 2.8 (2.1) | 2.6 (2.2) | -0.25 (2.6) |  | 0.69 (-1.01 to 2.38) | 0.23 (-0.34 to 0.80) |  | 0.43 |
| Happy Talk | 36 | 3.2 (2.5) | 3.4 (3.2) | 0.14 (3.5) |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Responsive Questions |  |  |  |  |  |  |  |  |  |
| Control  | 16 | 5.8 (2.6) | 5.4 (3.0) | -0.38 (4.3) |  | 0.48 (-2.04 to 3.0) | 0.12(-0.49 to 0.72) |  | 0.71 |
| Happy Talk  | 36 | 4.8 (3.0) | 5.7 (4.6) | 0.92 (4.9) |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Labels |  |  |  |  |  |  |  |  |  |
| Control  | 16 | 4.1 (2.5) | 3.9 (2.9) | -0.19 (2.8) |  | 0.55 (-1.37 to 2.47) | 0.16 (-0.39 to 0.70) |  | 0.58 |
| Happy Talk  | 36 | 3.9 (3.0) | 4.4 (3.4) | 0.47 (4.6) |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Responsiveness Total |  |  |  |  |  |  |  |  |  |
| Control  | 16 | 18 (5.4) | 16 (6.9) | -1.8 (7.4) |  | 3.72 (-1.47 to 8.91) | 0.40 (-0.16 to 0.96) |  | 0.17 |
| Happy Talk | 36 | 17 (8.0) | 20 (9.9) | 2.6 (11) |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Responsiveness Rate |  |  |  |  |  |  |  |  |  |
| Control  | 16 | 3.6 (1.1) | 3.3 (1.4) | -0.35 (1.5) |  | 0.744 (-0.294 to 1.78) | 0.401 (-0.159 to 0.962) |  | 0.166 |
| Happy Talk  | 36 | 3.4 (1.6) | 4 (2) | 0.53 (2.1) |  |  |  |  |  |
|  |  |  |
|  |  |  |

\* Estimates are between arm differences in mean scores at the end of the study, adjusted for baseline scores.

Table 5. CSCOT Rater Mean Pre- and Post-Intervention Scores
\* Estimates are between arm differences in mean scores at the end of the study, adjusted for baseline scores.

|  |  |  |
| --- | --- | --- |
|  | **Intervention** | **Control** |
| **Groups** | **Preschool A** | **Preschool C** | **Preschool B** | **Preschool D** |
| **Rater Average CSCOT** | Pre | Post | Difference | Pre | Post | Difference | Pre | Post | Difference | Pre | Post | Difference |
| LLE | 14.25 | 17.50 | +3.25 | 11.50 | 14.00 | +3.50 | 10.00 | 10.50 | +0.50 | 11.00 | 16.50 | +5.50 |
| LLO | 12.00 | 20.50 | +8.50 | 11.00 | 13.50 | +2.50 | 16.50 | 11.00 | -5.50 | 10.00 | 15.50 | +5.50 |
| LLI | 69.00 | 75.33 | +6.33 | 63.50 | 59.33 | -4.17 | 73.50 | 51.66 | -21.84 | 61.50 | 73.00 | +11.5 |
| Total | 95.25 | 113.33 | +18.08 | 86.00 | 86.83 | +0.83 | 100.00 | 73.16 | -26.84 | 82.50 | 105.00 | +22.5 |
| % Score | 66.15% | 78.70% | +12.55% | 59.72% | 60.29% | +0.57% | 69.45% | 50.81% | -18.64% | 57.30% | 72.92% | +15.62% |

\*Note: Rater 1 and 2 average used for- Pre (all dimensions) and Post (LLE and LLO), Rater 1, 2 and 3 average used for Post LLI (only).

CSOT, Communication Supporting Classroom Observation Tool (Dockrell et al., 2015); LLE, Language Learning Environment Score on the CSCOT out of 19; LLO, Language Learning Opportunities Score on the CSCOT out of 25; LLI, Language Learning Interactions Score on the CSCOT out of 100.

Table 6 - Staff quotes addressing the acceptability of Happy Talk using the Acceptability Framework (Sekhon et al., 2017)

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| --- | --- |
| **Affective Attitude***How an individual feels about the intervention* | “The children loved it, they were just so happy to see their parents coming in, getting involved and stuff.”“I really enjoyed the process and we try to use the strategies that we’ve learned every day and I think the children enjoyed it as well”. “The children couldn’t wait for Wednesday. And the parents couldn’t wait for Wednesday. Parents would come in saying the children were asking at home ‘is today Wednesday?’” |
| **Burden***The perceived amount of effort that is required to participate in the intervention ((e.g. participation requires too much time or expense, or too much cognitive effort, indicating the burden is too great) rather than the individual’s confidence in engaging in the intervention.* |  “Have to have lunch, then moving chairs. It would have been much easier if we could have brought the children up here. And then all the chairs could have been set up.  “And what we got was children upset that their parent wasn’t coming. And I felt that was really difficult for them to see other children’s parents there but theirs wasn’t there, you know……you were trying to explain to a four year old why someone’s parents were there and theirs wasn’t. And I did find that quite upsetting you know.” |
| **Intervention Coherence***The extent to which the participant understands the intervention and how it works. The construct of intervention coherence reflects an individual’s understanding of the perceived level of ‘fit’ between the components of the intervention and the intended aim of the intervention. Intervention coherence thus represents the face validity of the intervention to the recipient or deliverer.* |  “I think for me the big one is nursery rhymes. I’m more aware of repetition in nursery rhymes. .. “And I suppose it made parents more aware as well.“I think happy talk is built on involvement from everyone so parents, teachers and the children.” “They’re being exposed to more words y’know that might not be used at home. To newer words that they might not hear at home. And even the enthusiasm of words y’know. “I think just listening and allowing the child to fill the space, rather than asking your own questions you know. Or getting them to maybe ask you questions, you know. Yeah more silence.” |
| **Opportunity Costs***The extent to which benefits, profits or values must be given up to engage in the intervention* |  “All parents couldn’t attend because of work commitment and they couldn’t get off so a few of the kids would be disappointed. Like ‘I want my mum there’. I suppose that is a positive side too because parents were making more of an effort then, really trying to come.” |
| **Perceived Effectiveness***The extent to which the intervention is perceived as likely to achieve its purpose.* |  “I found it even helped them with their friendships y’know they were able to express their emotions through their language. “You hit me, I don’t like that” Y’know they were more confident and I could see they got more confident in what they were explaining to their peers.” “Yeah we covered language acquisition, how the child learns, modelling and that, and it did work. Because I saw it in some children after happy talk.” |
| **Self-efficacy***The participant’s confidence that they can perform the behaviour(s) required to participate in the intervention*  |  “Now I have big voice, but through [interventionist’s] modelling I know how to talk to children now... I bring down my voice. So there’s pace and they understand more. So I’ve learned a lot myself.”  “Like I think listening to [interventionist] as well, listening to her being repetitive with teaching them certain things then I demonstrate it- and I’m like oh that really worked I’m going to try that now and I’m going to be blue in the face doing it but I know it works so.” “Fantastic resource for the children. I noticed a difference in the way that I way speaking to the children from Happy Talk. That I was more aware of what I was saying to them.”We were so privileged to have her. We have new staff coming on now, we can keep it going and if we know something we can educate the staff that are coming on. |

**Focus groups 1 and 2 Interviewer topics**

* What is your experience of Happy Talk?
* What difficulties were there with implementation and how were they addressed?
* Which strategies/approaches are you most able to use in your practice, which were more difficult?
* What did you learn that you didn’t already know/do from the Happy Talk training?
* What materials and activity ideas were new to you? How did you find using them in practice?
* What aspects of the Happy Talk program were helpful? What aspects of the way Happy talk is delivered were helpful?
* Was the time commitment for you as staff manageable? Were the benefits worth the time investment?
* What comments did parents make about Happy Talk? Any positive comments, any difficulties?
* Did parents reflect on any changes in their child/perceived benefits for their child? What were those reflections?
* Do you perceive any benefits for the children in your setting? If so what were they? Peer relationships, language, vocabulary, school readiness?
* How successful was Happy Talk in changing parental engagement/ behaviour/ interactions?
* How applicable is Happy Talk to all of the children/families in your setting? Is it difficult for some children/families? Why/Who? (Disabilities, EAL, Other)
* If you could change one thing about Happy Talk what would it be?
* What would you need to maintain the changes you have made as a result of Happy Talk?