

| | treated | | untreated | | not targeted controls | | distinctive controls | |
|------------------------------------|--------------|-------------|----------------|-----------|-----------------------|-----------|----------------------|-------------|
| Phase 1 Phonological | | | | | | | | |
| SIWI | [ˈsupe] | soup | [sokoˈlete] | chocolate | [zeˈçete] | jacket | | |
| | [ˈsinɛfo] | cloud | [seˈkule] | bag | [ˈzexeri] | sugar | | |
| | [seliˈgeri] | snail | [suˈvleci] | skewer | [ˈzoe] | animals | | |
| SIWW | [çeˈresi] | cherry | [ˈmɛlise] | bee | [ˈvezo] | vaze | | |
| | [puˈkemiso] | shirt | [musiˈci] | music | [kuˈzine] | kitchen | | |
| | [ˈmejise] | witch | [tilɛˈoresi] | TV | [mɛˈzure] | meter | | |
| Phase 2 Morphological | | | | | | | | |
| /s/SFWF FGS | [çɛˈlonɛs] | turtle's | [oˈbrɛlɛs] | umbrella | [ˈmɛlisɛs] | bees | [moˈru] | baby's |
| | [kukuˈvejes] | owl's | [ˈkotes] | hen | [ˈbluzɛs] | blouzes | [keˈpɛlo] | hat's |
| | [ɛjeˈlɛðɛs] | cow's | [ˈɣɛtɛs] | cat | [oˈbrɛlɛs] | umberelas | [ˈmilu] | apple's |
| /s/SFWF MAP | [ɛˈlɛfɛdɛs] | elephants | [kerxɛˈriɛs] | sharks | [pepeˈɣɛlos] | parrot | [pepeˈɣɛlon] | parrots' |
| | [ˈkokorɛs] | roosters | [ˈmejirɛs] | cooks | [ˈlikos] | woolf | [ˈlikon] | woolves's |
| | [ˈɛdrɛs] | men | [ɛɛˈtus] | eagles | [lɛˈɣos] | rabbit | [lɛˈɣon] | rabbits's |
| Phase 3 Phonological | | | | | | | | |
| /sk/ WI | [ˈskele] | ladder | [ˈskevi] | digs | [steˈfili] | grape | [ˈtreno] | train |
| | [ˈskeci] | chess | [skeˈdzoçiros] | hedgehog | [ˈstome] | mouth | [ˈtrɛçi] | run |
| | [skuˈlici] | worm | [ˈscilos] | dog | [steˈfeni] | crown | [ˈtroi] | eat |
| /sk/ WW | [ˈproskopo] | scout | [voˈskos] | shepherd | [ˈfuste] | skirt | [jeˈtros] | doctor |
| | [keˈskol] | scarf | [biˈskoto] | biscuit | [estiˈnomos] | policeman | [ˈvetrexos] | frog |
| | [fuˈskono] | blow | [ˈmeske] | mask | [muˈsteci] | mustache | [ˈcitrino] | yellow |
| /ks/ WI | [kseˈplono] | lie | [kseciˈneo] | start | [ˈpsɛri] | fish | | |
| | [ksiˈfies] | swordfish | [ˈksifos] | sword | [psɛˈliði] | scissors | | |
| | [ˈksilo] | wood | [ksiˈrefi] | razor | [ˈpsino] | grill | | |
| /ks/ WW | [eksoˈçi] | countryside | [ˈemɛkse] | carriage | [ɛˈpopsɛ] | tonight | | |
| | [ˈmikɛ] | snot | [ˈeniksi] | spring | [ˈjipso] | plaster | | |
| | [ɛˈmeksi] | car | [meksiˈleri] | pillow | [teˈpsi] | pan | | |
| Phase 4 Morphological | | | | | | | | |
| /ks/ / simple past morpheme | [ˈðjelɛksɛ] | chose | [ˈpetɛksɛ] | threw | [ˈɛnepɛ] | lit | [ciˈmetɛ] | is sleeping |
| | [ˈfoneksɛ] | shouted | [ˈɛnikɛ] | opened | [ˈɛkopɛ] | cut | [ˈplɛnetɛ] | is washed |
| | [ˈɛpɛksɛ] | played | [ˈtilikɛ] | wrapped | [ˈɛvɛpsɛ] | painted | [xtɛˈnizɛtɛ] | is combed |

Appendix 2 Sample activities used during the intervention sessions

Sample activity 1

Target: update of stored motor programmes in the word stem: the production of /s/ in WISI position.

Pictures of words are presented, for the child to name each one. If /s/ WISI is accurately produced, activity continues. If /s/ production is inaccurate corrective feedback is given on positioning of the articulators. If the second attempt is inaccurate then a model is given for the child to imitate.

Sample activity 2

Target: update of stored motor programmes in the word suffix: elicited production of feminine nouns in genitive case in singular number.

Pictures of feminine nouns (i.e. /ɛjɛ'ləðv/ cow) are presented and a carrier phrase (this tail is...whose?) is used to elicit production in genitive (/ɛjɛ'ləðvəs/ cow's). If both case and /s/ suffix are accurately produced activity continues. If genitive case is not produced, the need for the noun to be in genitive is explained. If /s/ production is inaccurate, corrective feedback is given on positioning of the articulators.

Sample activity 3

Target: Auditory discrimination of nominative-genitive case in the word suffix

Pairs of stimuli identical or differing by case suffix (/ɛjɛ'ləðv/-/ɛjɛ'ləðvəs/cow-cow's) are auditory presented. The child is asked to decide if the stimuli heard were same or different. If the decision is correct, activity continues. If the child fails to discriminate the therapist repeats the pair with prolonged duration of /s/. If the child fails twice, visual and tactile information is used as corrective feedback.

| | Task | Possible total | Mean | Standard Deviation | =-1.5 Standard Deviation | 2 months pre | Pre | Post | 2 months post |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------|-------|--------------------|--------------------------|--------------|------|------|---------------|
| Language tasks | DVIQ C | 31 | 21.00 | 3.63 | 15.55 | 20 | 21 | 22 | 26 |
| | DVIQ P | 24 | 15.06 | 2.98 | 10.60 | 14 | 14 | 14 | 14 |
| | DVIQ SR | 48 | 45.73 | 2.34 | 42.22 | 35 | 36 | 39 | 42 |
| | Word Finding | 50 | 22.25 | 7.92 | 10.37 | 13 | 11 | 12 | 13 |
| Input tasks (performance above chance at p=.05) | NWAudDPhon | 30 (23) | 23.50 | 3.27 | 18.60 | 20 | 21 | 27 | 24 |
| | NWAudDMor | 30 (23) | 25.88 | 3.07 | 21.26 | 22 | 23 | 26 | 28 |
| | RWAudDPhon | 30 (23) | 24.87 | 2.47 | 21.15 | 19 | 19 | 21 | 25 |
| | RWAudDMor | 30 (23) | 26.31 | 2.91 | 21.94 | 17 | 16 | 24 | 27 |
| | RW AudD with Picture Choice | 30 (17) | 21.07 | 3.83 | 15.33 | 19 | 17 | 24 | 24 |
| | Mispronunciation Judgment | 30 (23) | 25.27 | 2.46 | 21.57 | 20 | 21 | 25 | 28 |
| Output tasks | NamingWW | up to 50 | 24.19 | 11.93 | 6.29 | 4 | 6 | 15 | 15 |
| | RWRepPhon | 30 | 24.60 | 5.95 | 15.68 | 16 | 16 | 19 | 21 |
| | RWRepMor | 30 | 22.93 | 8.19 | 10.65 | 5 | 7 | 18 | 8 |
| | RWPol s | 21 | 11.40 | 7.34 | 0.39 | 3 | 4 | 7 | 9 |
| | NWRepPhon | 30 | 22.53 | 5.96 | 13.59 | 17 | 18 | 20 | 24 |
| | NWRepMor | 30 | 21.73 | 7.96 | 9.79 | 6 | 7 | 16 | 9 |
| | NWPol s | 21 | 10.07 | 6.51 | 0.30 | 2 | 3 | 5 | 7 |
| | NamingPCC | 100% | 89.84 | 12.07 | 71.73 | 61.4 | 65.3 | 85.3 | 86.1 |
| | RWRepPhon | 100% | 92.47 | 9.21 | 78.65 | 79.0 | 80.0 | 85.7 | 88.3 |
| | RWRepMor | 100% | 93.23 | 8.57 | 80.38 | 76.3 | 77.9 | 87.8 | 81.7 |
| | RWPol | 100% | 87.57 | 12.67 | 68.56 | 66.7 | 68.0 | 81.1 | 86.5 |
| | NWRepPhon | 100% | 89.44 | 9.12 | 75.76 | 77.2 | 79.2 | 91.0 | 87.0 |
| | NWRepMor | 100% | 89.44 | 11.47 | 72.23 | 68.4 | 71.3 | 83.2 | 74.3 |
| | NWPol | 100% | 86.01 | 13.30 | 66.06 | 65.7 | 65.7 | 82.9 | 83.8 |
| PA STM | Words Recalled | 108 | 39.67 | 14.80 | 17.47 | 20 | 18 | 18 | 22 |
| | Word Chunks | 28 | 9.93 | 2.71 | 5.87 | 6.0 | 5.0 | 5.0 | 6.0 |
| PA | Segmentation | 68 | 36.40 | 5.70 | 27.84 | 20 | 20 | 29 | 34 |
| | Blending | 10 | 7.90 | 1.48 | 5.68 | 4.5 | 4.5 | 5.0 | 5.0 |
| <p>Notes: DVIQ=Diagnostic Verbal IQ Test (Stavrakaki & Tsimpli, 2000), P=Production, C=Comprehension, SR= Sentence Repetition, RW= Real Word, NW=Nonword, AudD=Auditory Discrimination, Rep=Repetition, Phon=Phonological, Mor=Morphological, Pol=Polysyllabic, WW=accuracy of the whole word, PCC=Percentage of Consonants Correct</p> | | | | | | | | | |
| <p>Performance on tests found to be one and a half standard deviation below the performance of peers is highlighted in red and performance within the expected age range is highlighted in green.</p> | | | | | | | | | |