Can we improve comprehension of grammar in secondary-aged students with language impairments?

A randomised control trial of therapy for coordinating conjunctions

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Factors affecting change with therapy

- Two participants did not have the full 4 hrs of therapy. Not all reached the final step of the therapy sequence (ranging from step 3 to 14)
- Correlations (for Therapy group) showed a significant relationship between combined average change for ‘but not’ with Age and step reached (due to one participant who didn’t complete ‘but not’ therapy and performed worse after therapy)
- No other correlations found for other conjunctions, not with Age
- Pre-therapy scores
- Standardised language tests
- Visual-perceptual skills

Acknowledgements

- Other SLTs who delivered therapy
  - Mary Jennings
  - Naomi Knox
  - Sarah O’Sullivan
  - Lisa Morel
- Blind assessor
  - Sarah Bayliss
- Help with resources and video recordings
  - Lauren McCormack
- All pupils who took part in study
- Moor House School for funding and supporting therapy research

Background

- Many secondary-aged students have difficulties with comprehension and production of grammar.
- A randomised control trial (RCT) using Shape Coding showed it improved production of argument structure (Ebbels et al., 2007).
- Single subject experiments showed it improved comprehension of several grammatical structures (Ebbels & van der Lely, 2001; Ebbels, 2007).
- However, these findings may not generalise to other language-impaired children.
- Thus a more rigorous trial is required into comprehension therapy using this method, especially as the evidence for effectiveness of any therapy for comprehension difficulties is limited (Law et al., 2003).

Methods

Participants
- Fourteen students at specialist school for children with primary language difficulties
- Age: 11:3 – 16:1 (mean: 13:6)
- Mean standard scores:
  - CELF-4 Receptive Language: 53
  - CELF-4 Expressive Language: 50
  - TROG: 59

Study Design
- Students randomly assigned to two groups: Therapy versus Waiting Controls.
- Therapy group received eight half hour sessions 1:1 with SLT
- Waiting controls now receiving therapy

Testing
- Participants were tested (‘blind’) pre- and post-therapy on 1. the TROG, 2.a specific picture-pointing test of the targeted conjunctions, 3.a functional classroom-based test of the targeted conjunctions and 4.a picture-pointing test of passives (used as an additional measure of control).
- When the waiting controls have also completed the therapy, all participants will be re-tested. This will allow us to determine whether
  a) the original therapy group maintain progress
  b) waiting controls make same progress as original therapy group.

Conclusions

- Four hours of Shape coding therapy significantly improved comprehension of ‘neither nor’ and ‘not only but also’
- Control structure (passives) also improved (but not significantly) in therapy group but got worse in controls
- Further results will become available when the Waiting controls have also finished the therapy (July ‘11)

Study Design

- Participants started at step 1 but the timing of the steps was at the discretion of the SLT, to suit each individual child. All coordinating conjunctions were introduced by explaining their meanings (aided by use of symbols) and use and then practised in 4 different constructions:
  1. Coordinated NP + VP: (The cow and the dog) run
  2. NP + Coordinated VP: (run, but not) running
  3. Coordinated NP + AP: (Neither the ball nor the hat) looks blue
  4. NP + Coordinated AP: (The ball, not only blue but also red)

SLT and the student took turns to produce sentences, while the other acted out/drew pictures/coloured in pictures. When accurate, templates removed but brought back to check responses.

Step 1: Intro to Shape Coding – introduction of shapes for subject NP, auxiliary, verb and adjective phrases
- Steps 2, 3, 4, and 5: focused on “and” vs “but not”
- Steps 6, 7, 8 and 9: focused on “neither nor”
- Step 10, 11, 12 and 13: focused on “not only… but also”
- Step 14: Everything together – focused on all of the coordinating conjunctions

Therapy

Therapy block consisted of a sequence of 14 suggested steps (listed below). Each participant started at step 1 but the timing of the steps was at the discretion of the SLT, to suit each individual child. All coordinating conjunctions were introduced by explaining their meanings (aided by use of symbols) and use and then practised in 4 different constructions: