Can we improve comprehension of vocabulary in secondary-aged students with language impairments? Evaluating the effectiveness of therapy in a Key Stage 3 Science lesson

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Background

• Children with SLI frequently experience difficulties with comprehension of subject-specific vocabulary (Parsons, Law & Gascoigne, 2005). However, vocabulary instruction is neither frequent nor systematic in most schools.
• Previous studies suggest that the teaching of specific vocabulary within a practical teaching context can support students’ learning of scientific concepts (Sim 1996;1998)
• Research into comprehension and teaching of curriculum vocabulary is limited and thus, results cannot be assumed to generalise to the wider population of language impaired children.

Methods

• Participants
Eighteen students attending a specialist school for children with Specific Language Impairment. Age: 12.3 – 13.11
Students are from two unmatched KS3 classes (Class A and Class B)
All students are covering the same topics in Science
• Study Design
Classes were separated into Therapy vs. Waiting Controls
Class A received direct input from SLT in first term
Class B received direct input from SLT in second term
Class A are currently receiving therapy again during third term.
• Testing
Participants were tested pre-therapy and post-therapy each term using a multiple-choice test, assessing comprehension of words within context. The target words in the Autumn Term were a mix of nouns and verbs, but solely verbs in the Spring.

Therapy

<table>
<thead>
<tr>
<th>Term</th>
<th>Autumn 10</th>
<th>Spring 11</th>
<th>Summer 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Vocabulary</td>
<td>nouns/verbs</td>
<td>verbs</td>
<td>verbs</td>
</tr>
<tr>
<td>Class Receiving Therapy</td>
<td>A</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>Control Class</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
</tbody>
</table>

• Each therapy block consisted of ten fifteen-minute sessions of classroom-based therapy led by an SLT.
• Each session focused on the comprehension of one “word of the week” central to the science lesson topic.
• Therapy consisted of a multi-faceted approach to learning to include both semantic and phonological components.
• Intervention included strategies such as direct instruction, facilitating discussion, picture/symbol construction and quiz/games.
• Students received no direct follow up work on WOW. However, this was offered for independent learning.

Results

<table>
<thead>
<tr>
<th>Class A (SLT)</th>
<th>Class B (Control)</th>
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</thead>
<tbody>
<tr>
<td>Normalised Gain scores: amount of change made ÷ amount of change possible before reaching ceiling (max = 1). These were used to take ceiling effects into account.</td>
<td></td>
</tr>
</tbody>
</table>

Autumn Term

Mean raw scores, mean normalised gain scores and their standard deviations calculated for each class each term

<table>
<thead>
<tr>
<th>Class A (SLT)</th>
<th>Class B (Control)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normalised Gain Scores by Class</td>
<td></td>
</tr>
<tr>
<td>Autumnterm</td>
<td>Spring Term</td>
</tr>
<tr>
<td>Class A</td>
<td>Class B</td>
</tr>
</tbody>
</table>

Summary

Class A (Lower-ability class)
• Made significant progress in the Autumn Term when they received direct SLT intervention to develop their scientific vocabulary.
• Made no progress in Spring Term with no SLT intervention.
• Whilst unlikely, as this is known to be a lower level class, it could be that their results were affected by the change between targeting nouns and verbs to just verbs in the latter term.
• To investigate this possibility, Class A is currently receiving SLT intervention targeting 10 verbs and Class B is acting as control.

Class B (Higher-ability class)
• Showed equal progress both terms.
• Two variables (nouns vs. verbs and SLT support vs. no SLT support) were changed between the 2 terms.
• This confirms the issue as to whether Class B actually requires any direct SLT support to make progress in Science.
• This term Class B is not receiving SLT support with verbs SLT support needed ➔ no significant improvement
Teaching alone effective ➔ significant improvement

Conclusions

• Results so far suggest that lower ability students benefit significantly from increased SLT support during science lessons.
• It may be that higher ability students make effective progress with the differentiated teaching of Science alone.
• More conclusive results will be available following therapy this term.

Acknowledgements

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