Conversation therapy outcomes for people with agrammatic aphasia and their conversation partners: group and case series findings

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Roots of BCA

Conversation therapies increasingly used with people with aphasia (PWA) and their Conversation Partners (CPs), but the evidence base remains limited (Wilkinson and Wielart, 2012)

Conversation often provides a different picture from formal assessments of language (Beeke et al., 2007)

Mixed methods - Conversation Analysis is a qualitative approach and some aspects of conversation can be counted reliably (e.g. POWERS, Herbert et al., 2012)

Video – core to intervention and evaluating outcomes
Trunk

- Design
- Participants
- Conversation facilitators and barriers
- Intervention
- Fidelity
- Measuring outcomes (workshop pm)
Design

Pre-assessment phase (8 weeks)
- Formal assessment
- 8 video conversations

Therapy (8 Weeks)
- Adapted from the SPPARC
- Both people’s behaviour targeted

Re-assessment phase (8 weeks)
- Formal assessment
- 8 video conversations
Design

- Baseline phase matched to intervention phase and follow-up phase for contact (charm effects)
- Conversations via video camera left at home
- Assessment of conversations all blind to point of data collection (18 students across BSc, MSc and PhD, projects supervised over 5 years)
<table>
<thead>
<tr>
<th>Dyad number</th>
<th>Age at recruitment (gender)</th>
<th>Months since onset of aphasia (at time of 1st session)</th>
<th>Previous employment</th>
<th>CP relation to PWA (gender)</th>
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<tbody>
<tr>
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<td>49 (f)</td>
<td>33</td>
<td>Jazz singer</td>
<td>Twin (f)</td>
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<td>2</td>
<td>39 (m)</td>
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<td>4</td>
<td>63 (m)</td>
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<td>Team manager NHS</td>
<td>Partner (m)</td>
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<td>5</td>
<td>57 (f)</td>
<td>39</td>
<td>Cashier at bookmakers</td>
<td>Son (m)</td>
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<td>60 (m)</td>
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<td>Gardener/ book illustrator</td>
<td>Wife (f)</td>
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<td>7</td>
<td>71 (f)</td>
<td>40</td>
<td>Deputy head teacher</td>
<td>Daughter (f)</td>
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<tr>
<td>8</td>
<td>57 (m)</td>
<td>10</td>
<td>Self-employed van driver</td>
<td>Wife (m)</td>
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</table>
## Conversations – examples of targeted dyad specific behaviours

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<thead>
<tr>
<th></th>
<th>Facilitators</th>
<th>Barriers</th>
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<tbody>
<tr>
<td><strong>PWA Focused</strong></td>
<td>PWA produces gesture or drawing or writing</td>
<td>PWA’s turn contains (long) <strong>pauses</strong> with no outward sign of intention to continue</td>
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<tr>
<td><strong>CP Focused</strong></td>
<td>CP asks ‘are you still thinking’ (or similar) during PWA mid-turn pause</td>
<td>CP asks a <strong>test question</strong> (one to which CP knows the answer)</td>
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</tbody>
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Conversations DSBs

Video example of barrier behaviour
Therapy Programme

Raising Awareness of Conversation
- Session 1: Conversation & agrammatism
- Session 2: Turn-taking & conversational sequences
- Session 3: Repair

Barriers & Facilitators in Conversation
- Session 4: Strategies for PWA
- Session 5: Strategies for CP
- Session 6: Topic

Consolidating Strategy Use
- Session 7: Practicing strategies in conversation
- Session 8: Reviewing & moving forward
Intervention

• Weekly therapy sessions of approximately 1.5 hours each took place at participants’ homes for 8 weeks.
• The PWA and CP were present for all sessions, which were designed to actively engage them both in discussion and problem solving focused on strategy use in their conversations.
Intervention cont...

- DSBs (facilitators and barriers) agreed jointly with dyads
- Video feedback was used alongside written materials
- Strategies practiced via role play, coached conversation, and homework activities
2. Asking *test* questions

‘Test’ questions are questions you know the answer to already. This is normal for teachers and pupils. But we rarely do this with friends and family.

*If you have a pattern of asking your partner test questions tick this box -*

What’s the weather like?

Cold

Good, right.
Intervention cont...

- Video example from intervention session
Measuring outcomes

Repeated tasks

- Language (PALPA) –
  • Comprehension of written sentences
  • Writing single words
  – Digit span – control task, predicted stable

Conversation

- Does the number of conversation facilitators before intervention differ from that after intervention?
- Does the number of conversation barriers before intervention differ from that post intervention?
Fidelity – 2 components
Heilemann et al., 2014

• Delivery of the planned intervention: results indicate a high overall adherence of the SLT to the components of BCA (fidelity score: 91.9%, SD=3.9; based on 227 observations).

• Qualitative aspects of therapy delivery: a high degree of desired therapist behavior was achieved during BCA sessions (96.7%, SD=4.1)
Inter-Rater Reliability for DSBs (Maxim and Heilemann)

• The agreement varied dramatically between different behaviours

• The overall percentage agreement for facilitators was 69\% (SD=21) and for barriers 64\% (SD=27).

Getting to the top of the tree to see our findings ...
Small but significant change from pre to post therapy in average performance in written naming
(pre 14.44 (SD 6.02), post 17.50 (SD 4.81), paired-sample t-test, t(5)=3.051, p=.028, two-tailed, Cohen’s d =0.55)
and comprehension of written sentences
(pre 14.46 (SD 4.33), post 16.63 (SD 4.27), t(7)=2.573, p=.037, two-tailed, Cohen’s d=0.50).
No significant change in digit span from pre to post therapy
(mean pre 4.42 (SD 3.13), post 4.25 (SD 3.28), paired-sample t-test t(7)=.247, n.s., two-tailed, effect size Cohen’s d=0.05)
Conversation results for group then dyads
Group findings over the study

Facilitators

Conversation facilitators - group means

Mean number of facilitators in 5 minutes conversation

C2 C3 C4 C6 C7 C8 Therapy C11 C12 C13 C14 C16 C17 Mean pre Mean post
Group findings over the study

Facilitators

Conversation facilitators - group means

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Mean number of facilitators in 5 minutes conversation

Circle indicates significant difference in pre and post means.
Group findings over the study

Barriers

**Conversational barriers - group means**

- Mean number of barriers in 5 minutes conversation

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The graph shows the mean number of barriers in 5 minutes of conversation for each participant (C2 to C17) and the mean pre and post values.
Group findings over the study

Barriers

Conversation barriers - group means

Mean number of barriers in 5 minutes conversation

0 2 4 6 8 10 12
C2 C3 C4 C6 C7 C8 Therapy C11 C12 C13 C14 C16 C17 Mean pre Mean post
Group findings: pre-post comparison

No significant increase in facilitators group
(mean pre 33.72, post 35.70, paired-sample t-test on square-rooted values, t=0.73 (7), two-tailed p=0.492, n.s., Cohen’s d on raw values=0.14, minimal).

Significant decrease in barrier behaviours
(mean pre 8.73, post 2.52, t=test on square-rooted values, t=2.71 (7), 2 tailed p=0.015, sig., Cohen’s on raw values d= 0.73, medium).
Counts of facilitator behaviours for each dyad at each conversation

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Variability over time and dyads
Significant test for homogeneity- genuine differences in change between dyads
Counts of facilitator behaviours for each dyad at each conversation

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Variability over time and dyads
Significant test for homogeneity- genuine differences in change between dyads
Counts of facilitator behaviours for each dyad at each conversation

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Variability over time and dyads
Significant test for homogeneity- genuine differences in change between dyads
Significant increase for dyads 1 and 2 and trend for dyad 5 (Poisson Trend Test with correction for multiple comparisons)
Dyad 7 showed a statistically significant decrease in facilitators
Counts of barrier behaviours for each dyad at each conversation

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Variability over time and dyads
Significant test for homogeneity- genuine differences in change between dyads
Counts of barrier behaviours for each dyad at each conversation

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Variability over time and dyads (need ‘enough’ conversations to get beyond noise)
Significant test for homogeneity- genuine differences in change between dyads
Significant decrease for D3, D4, D5, D6 and D8
No dyad showed a significant increase in barrier behaviours.
Results cont...

• Video example from after intervention
What mechanisms support conversational behaviour change in BCA? Johnson et al., 2016

Qualitative analysis of videos of therapy & post-therapy interviews

Analysis sought to identify participant explanations of how and why their behaviour changed

Themes developed to describe key mechanisms of change reported in the data

Themes interpreted according to behaviour change theory

Resulted in seven mechanisms of change, these differ for barriers and facilitators
Barrier and facilitator mechanisms compared

Use of Barriers in Conversation
- Mechanism 6 Changed priorities for conversation
- Mechanism 5 Changed expectation of behaviour's impact
- Mechanism 2 Increased awareness of own behaviour
- Mechanism 3 Replacing barriers with facilitators

Use of Facilitators in Conversation
- Mechanism 7 Changed perception of success in conversation
- Mechanism 4 Increased ease at implementing strategies
- Mechanism 5 Changed expectation of behaviour's impact
- Mechanism 2 Increased awareness of own behaviour
- Mechanism 1 Change in conversational support for PWA strategies
Barrier and facilitator mechanisms compared

**Use of Barriers in Conversation**
- **Mechanism 1**: Change in conversational support for PWA strategies
- **Mechanism 2**: Increased awareness of own behaviour
- **Mechanism 3**: Replacing barriers with facilitators
- **Mechanism 4**: Increased ease at implementing strategies
- **Mechanism 5**: Changed expectation of behaviour's impact
- **Mechanism 6**: Changed priorities for conversation

**Use of Facilitators in Conversation**
- **Mechanism 1**: Change in conversational support for PWA strategies
- **Mechanism 2**: Increased awareness of own behaviour
- **Mechanism 3**: Replacing barriers with facilitators
- **Mechanism 4**: Increased ease at implementing strategies
- **Mechanism 5**: Changed expectation of behaviour's impact

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**Mechanism 2**: Increased awareness of own behaviour
<table>
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<th>Changed Perception of Behaviour’s Impact (Benefits)</th>
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<tbody>
<tr>
<td><strong>R:</strong> So it’s about you making sure you’ve got paper and pens?</td>
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<td><strong>PWA:</strong> Yes, yes. Good, I think yes.</td>
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<tr>
<td><strong>PWA:</strong> I go ‘ooh’ it’s… (+ grimacing facial expression)</td>
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<td><strong>R:</strong> Don’t wanna do it</td>
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<td><strong>PWA:</strong> Yeah but no I think yeh, yeh. Good.</td>
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<td><strong>R:</strong> So at first you were like, oh, um, dunno</td>
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<tr>
<td><strong>PWA:</strong> Yeah. But no I think it’s… oh.</td>
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**Post Therapy: PWA6**

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<th>Changed Perception of Behaviour’s Impact (Costs)</th>
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<td><strong>I would ask questions that I would already know the answer to, y’know. So. I was aware I was doing it, but I wasn't aware of how it was affecting our conversation. So that definitely opened my eyes a bit. And helped me. And obviously those things, for myself. They've stayed with me. I became aware of them over the few months that we were doing the therapy. Once you break a habit.</strong></td>
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**Post Therapy: CP5**
Insights from the therapy and qualitative analysis

• Intervention using concepts from Conversation Analysis is accessible to participants with moderate to severe aphasia

• Handouts and video clips scaffold the therapeutic process
  – support reflection
  – provide vocabulary to talk about experiences

• Dyads are able to reflect on features of conversation and changes in some depth, and after a considerable time

• Mechanisms for change in facilitators may be more complex and open to variation than those for barriers

• Awareness of the impact of behaviour on conversation is important
Main findings & some implications

• Variability in conversation behaviors across dyads and occasions.
• Despite variability, significant changes in natural everyday conversation were found including a significant reduction in barrier behaviors for the group.
• The group findings were not reflected in the findings for individual dyads, 7/8 dyads showed significant positive change.
• The study highlights value of mixed methods research in order to both evaluate change and investigate how this is occurring.
The wider BCA team, funders, collaborators & references

1) BCA Resource.
   Beeke, S., et al., Available free at: https://extend.ucl.ac.uk/

2) Group and Case Series.
   Best, W., et al. (2016). *Frontiers in Human Neuroscience*

3) Qualitative Investigation.

Thank you to all participants and to you for listening!
Back up slides
Thank you
Experimental control

- Baseline matched with intervention (& follow up) for duration and therapist contact. Change in targeted behaviours occurred after treatment.
- No significant change in digit span, a sensitive measure, not at floor or ceiling.
- Participants with aphasia all over 10 months since stroke at start of involvement in study
- All conversations (primary outcome measure) analysed and scored by raters blind to point of data collection.
Implications for practice

• Have a look at the BCA resource
  Freely available and evidence to support the approach, as part of range of options on offer

• Use of video likely to be key – be brave

• Goal setting, may be wise to include barrier reduction alongside increasing conversation facilitators

• Include both conversation partners, change can be co-constructed