Linguistic determinism and the understanding of false beliefs

Jill G. de Villiers and Peter A. de Villiers

Hypothesis

“Access to a rich language is a necessary ingredient in establishing the mature ToM on a normal timetable, we needed to demonstrate that young oral deaf children have limited access to language of sufficient complexity to capture false belief statements, and that they fail traditional, language-based false belief tasks.”

Hypothesis con’t

- Tasks needed to be found that demonstrate tested understanding of ToM with associated use of language
- Subjects must have normal IQ, active socially, and be moderately to profoundly deaf

Tests Used - Gale et al. 1996

- Unseen change in location
  - 23 deaf subjects
  - Aged 4-9
- False belief reasoning- Unexpected Contents
  - 21 subjects
  - Received point for reporting their own initial false belief, another for reporting for the likely false belief
Results

- 55% passed change in location test
- Average passer was 7.41 years old
- 8 of 21 answered both correctly (38%) in unexpected contents task
- Average age of passers was 7.25
- These ages are both 3 years older than the testing on hearing children

What does this mean?

- “This would suggest that language delay can have a significant impact on false belief reasoning, but we must also demonstrate that the deaf children’s language was predictive of their performance on the false belief tasks.”

Explanation of action

- 18 deaf subjects watched videos
- Shown still pictures afterwards and are asked what happened
- Given points based on the sophistication of their answer

Interpreting the Data

- Combined performance on the false belief tasks and the explanation of action task
- Data suggests that it is the language of deaf children that is responsible for their delays in standard false belief performances.
- However, the tasks placed demands for language comprehension, so they used more non-verbal procedures
Less-verbal Tasks

- Sticker-finding game
- Clues given by a knower who saw where it was hidden, and one who has been blindfolded
- Only 11 of 23 succeeded in choosing the knower’s advice substantially more
- Average age of passer was 7.31
- Proved that they were equivalently

What face?

- 28 3-4 year olds
- Shown pictures of something being placed in a box that is surprising. Ex. Keys in a crayola box. The children were supposed to pick whether there would be a surprised or not surprised face.

Results (hearing kids)

- 10 of 18 4 year-olds, 2 of 10 3 year olds passed
- Significant average age difference between passers and failures on this task, but not on standard verbal tasks

Summary of Data (hearing kids)

- A predictive relationship over time for normally developing hearing preschoolers between control of sentential complement syntax in comprehension and production and performance on standard false belief tasks, with syntax at an earlier age predicting later theory of mind performance.
Summary con’t (deaf kids)

- Oral deaf children with normal IQ, and active social intelligence are significantly delayed in both standard verbal false belief tasks and much less verbal theory of mind tasks. Performance on both verbal and non-verbal tasks are delayed to the same degree and highly intercorrelated, so it is not just the language of the tasks that leads to delay.

Something else to think about

- Objection: the acquisition of theory of mind is a continuous process, not an all-or-none development, as is the acquisition of sentence complements.

Summary con’t (deaf kids)

- Both verbal fals belief reasoning and non-verbal theory of mind reasoning in deaf children are best predicted by sentential complement production with verbs of communication or mental state, not just by general language ability.