Audiovisual Language: Do Congruent & Incongruent Gestures Affect Children’s Comprehension?

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ABSTRACT
Audiovisual language processing abilities are often studied using an auditory visual-speech task like the McGurk task. However, reliance on the visual modality for language processing is also induced by the role of gesture in language. While research using electrophysiology has shown that adults integrate speech and gesture simultaneously, developmental research on gesture has shown that the influence of gesture on language increases with age such that 3 year olds are not greatly influenced by gesture and 5 year olds, while not yet adult-like, are more influenced by gesture. The current study replicated McNeil, Alibali & Evans (2000) assessing, this time, both reaction times and average time spent looking at speech-gesture videos to determine how children may be using gestures to facilitate comprehension.

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REFERENCES


BACKGROUND
- Electrophysiological evidence that the brain integrates speech and gesture information simultaneously (Özyurek et al., 2007)
- Speakers can often convey unique information in their gestures as compared to their speech (Alibali, Evans, Hostetter, Ryan, Mainela-Arnold, 2009)
- Redundant gestures can facilitate comprehension of a complex spoken message in 4 to 6 year olds (McNeil, Alibali, & Evans, 2000)

PURPOSE
The purpose of this study was to examine the impact of redundant and non-redundant gesture-speech combinations on processing speed in children.

METHOD
Participants
CHILDREN (N = 10)

Age (years; months) Mean SD Range
9.9 1.2 8.2-11.1

Demographics
Children
- 5 Females, 5 Males
- Monolingual typically developing children with no prior history of perceptual or neurological disorders

PROCEDURE
- Participants were instructed to “Touch the block that the woman tells you to find”
- 18 Trials
- Videos presented one at a time in a fixed random order on a touch screen monitor
- Counterbalanced location of blocks on screen
- Programed on PsyScope X

RESULTS

SUMMARY
1) Accuracy on a language comprehension task was not greatly influence by the information convey in gesture.

2) Speed of processing is slowed by non-redundant gesture-speech combinations.

3) Children look significantly longer at the speaker when her gesture-speech combinations are redundant.