

The Body's Natural Defences Against Communicative Disease.

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Research on the functions of co-speech gestures focuses on speaker's gestures; either on the extent to which they aid production processes or aid addressee comprehension (see Holler and Wilkin, 2011). Less attention has been paid to what a *listener's gestures* contribute to speech production i.e, on situations in which listeners gesture concurrently with a speaker's production of a turn. Normally listeners gesture much less than speakers, not least because it can be interpreted as a bid for the floor. However, if conversation is a collaborative process, then we should predict that when problems with mutual-understanding are encountered listeners should respond more strongly reflecting their joint responsibility for establishing and maintaining the shared 'common ground' (Clark, 1996). We have previously shown that listeners gesture more during speaker utterances that contain self-repairs (Healey et. al. 2013). Here we investigate listener gestures to speaker's speech during clarification sequences; a situation in which problems with mutual-understanding are especially manifest. Specifically, we test the prediction that listeners should make extra use of embodied resources to aid speakers during these clarification sequences.

A corpus of 10 dyadic story-telling dialogues, captured using video and optical motion capture was hand coded for basic content-specific gesture types (Deictic, Iconic, Metaphoric, Abstract Descriptive) and for clarification questions and their responses. Standardised measures of hand movement were obtained from the motion-capture data (following Battersby and Healey 2010). The results show that although clarification dialogues are relatively rare events, they have a distinctive multi-modal and sequential character. In non-clarification sequences Speaker's gesture much more frequently than Listeners producing gestures during 32% of their turns. Listeners never produce more content specific gestures than speakers however during clarification sequences Listeners more than double the frequency of their gestures, rising from 7.5% to 18.9% ($\chi^2_{(2)} = 66.3, p < 0.00$) and in particular they use a higher proportion of Iconic gestures than during non clarification sequences. GLMM analysis of the motion capture data also shows that Listeners move their hands faster while a speaker is asking a clarification question whereas Speakers move their hands faster than listeners during the response.

These results underline the importance of investigating gesture and other embodied communication resources in the context of dialogue. They show that the integration of speech and non-speech resources is an interactive achievement involving multiple participants as well as multiple modalities. Listeners contribute not just by providing appropriately timed feedback but in some circumstances contribute, concurrently, to the content of another persons turn through the deployment of content-specific gestures.

References:

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