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Collaborative idea construction: Repetition of gestures and talk in joint brainstorming

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Abstract

This study examines the roles of gesture repetition in the process of collaboratively shaping ideas. The data involve three college students brainstorming for the production of a short film. Employing primarily language and depictive gestures, the participants collaboratively shape ideas of the film scenes, characters' actions, and camerawork; they accept or reject each other's proposals, elaborate upon them, modify a part of them, and/or combine them into complex wholes. In particular, by repeating one another's gestures (or components thereof), the participants can show their manipulation of one another's ideas. On the one hand, the analyses demonstrate that the participants can indicate full acceptance of the previous speaker's idea, a cooperative move, by fully repeating the gesture produced during its proposal. On the other hand, a partial or modified repeat of the previous gesture does not signal complete acceptance of the previous proposal: the repeated feature of the gesture represents an accepted part of the previous proposal, but the modified feature of the gesture reveals exactly what the speaker does not accept and suggests instead. The present study thus demonstrates how repetition or modification of gestures across speakers serves to create coherence and to display cooperation and competition.

Keywords: Embodied interaction; Gesture repetition; Brainstorming

1. Introduction

This paper examines the interactive embodiment and formation of ideas among group members during brainstorming sessions. Drawing from the findings of micro-analytic studies of interaction, this study investigates the roles of talk and gestures in the process of proposing ideas, accepting or declining them, elaborating upon or modifying them, and integrating them in order to achieve agreement concerning the decisions the members arrive at.

A group meeting among three college students working to create a short movie for a class project is examined. During their meeting, they brainstorm the ideas for the project and compile them together to design each scene of their movie. The goal of their interaction is to reach agreement on the way to set up their project and film each scene. The three main components that they discuss are the movements of the characters, the angles and positions of the camera, and the background scenes and settings. By switching roles between the cameraman and the characters as well as describing the background settings, they imaginatively create the movie scenes that they plan to film and bring the proposed ideas into shape. Interestingly, the group members do not draw a picture or use visual representations to describe what they imagine. Instead, their ideas, which exist in their head, are made visually available for others to comment on, elaborate upon, or (dis)agree with through gestures in combination with talk and other semiotic means. The present study attempts to explicate what such a process reveals about gestures in a collaborative activity.

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1.1. Gesture and depiction in interaction

A growing number of studies on gestures deployed during conversations have revealed their importance in organizing interaction. Studies focusing on interaction have demonstrated that gesture is not a mere externalization of one's psychological state or by-product of speaking. Instead, the synchronization of gesture and speech makes an ongoing activity a publicly observable practice and furnishes the opportunity for others to organize their coordinated entry into the activity (e.g., Goodwin, 1995, 2003a,b, 2004; Goodwin and Goodwin, 1986; Hayashi, 2005; Heath, 1986, 2002; LeBaron and Streeck, 2000; Mondada, 2007; Murphy, 2005; Schegloff, 1984; Streeck, 1993, 1994, 2009a,b; Streeck and Hartge, 1992). For example, Goodwin and Goodwin (1986) show that vocal and visual displays of one's inability to find a word (such as pauses or a ''thinking face'') and related gestures that indicate the word's meaning not only demonstrate the kind of activity in which the speaker is currently engaged (a word-search in this case), but also elicit others' co-participation in the activity.

It is also important to note that a gesture can be perceived and processed even when produced in overlap with others' speech. Streeck and Hartge (1992) and Mondada (2007) illustrate gestures' function of *projection*. Speakers, by employing gestures, can claim their turn to speak and/or pre-indicate the type of an upcoming activity before others finish speaking so that other participants can coordinate their next actions accordingly. Gesture, through its feature of making an ongoing or upcoming action visible, is a social practice that enables coordination among participants.

Among the various modes of gestural activity, the most relevant to the present study is its function of depiction or representation. According to research on gesture taking a psychological perspective, ''iconic gestures'' (McNeill, 1992), which provide images to the semantic content of co-occurring speech, reflect the speaker's viewpoint (McNeill, 1992, 2005). It is pointed out that, unlike standardized gestures such as ''emblems'' (Ekman and Friesen, 1969), which are used independent of speech, iconic gestures are interpretable only in combination with speech. While this psychological approach focuses on the mental processing of a single speaker's gesture without looking at the kind of actions that gestures accomplish, researchers focusing on interaction demonstrate how ''depictive gestures'' (Streeck, 2009a) can become a resource for organizing interaction (LeBaron and Streeck, 2000; Streeck et al., 2011). They reveal that depictive gestures embody a real or imaginary object or person, knowledge, thought, emotion, pain, or imagination, and also make them ''handle-able'' (Streeck, 2009a:149). In other words, they serve as a local resource to enable co-orientation to and/or co-participation in an ongoing activity; they are a social practice rather than a mere representation of one's mind (e.g., Heath, 2002; Koschmann and LeBaron, 2002; LeBaron and Koschmann, 2003; LeBaron and Streeck, 2000; Murphy, 2005; Streeck, 2009a,b). For example, Murphy (2005) shows how three architects use talk, gesture, and material objects to collaboratively imagine a scientific laboratory building for a university. Since the employment of gestures and other communicative resources makes one's imagination visible in the shared space, the architects can add to or comment on one another's imagination and co-construct an imaginary building.

Additionally, unlike a psychological approach, which analyzes the meanings of a single speaker's gestures in relation to speech, research focusing on interaction demonstrates that a depictive gesture alone does not provide its meaning; rather, talk, gesture, other semiotic resources, surrounding environment, and ongoing activity in interaction contextualize each other to constitute an action. It is thus crucial to understand what a gesture does through a close examination of its coordination with other resources. It is also important to note that a gesture is understood in relation to the environment (''material world'') in which it is used, as well as the activity in which it is embedded (Streeck et al., 2011). The shared knowledge among participants in a given environment during a specific activity makes the use of gesture and talk a meaningful action. Examining an instructional situation in which a teacher explains the use of tools, LeBaron and Streeck (2000) show how the meaning of a gesture is understood based on the shared experiential knowledge constituted through the previous interaction. The hand movements of a teacher showing how to use a tool while actually handling it become shared knowledge between the teacher and the students, enabling them to understand what the hand movements represent even when the teacher is not holding the tool. Note that depicting by gestures is not simply ''copying'' (Streeck, 2009a), but ''characterizing''; it is how the teacher's hands actually handle the tool, namely, his experience with the tool that his hand movements depict, rather than what the tool looks like.

Taking this latter approach to gesture, I investigate how talk, other semiotic resources, surrounding environment, and the type of ongoing activity contextualize gestures in interaction. It is useful to note that the participants in the present data build shared knowledge as they describe their imagination by coordinating gesture and talk, as well as use the shared knowledge as they understand the meaningful gestural movements in relation to talk. By looking at the reuse of prior gestures, I thus illustrate both processes: how the employment of gestures reveals the emergence of shared knowledge and how the shared knowledge contextualizes gestures in interaction.

1.2. Repetition of gestures

In the present data, similar gestures or gestural forms are deployed repeatedly by different speakers. This study thus specifically focuses on how gesture repetition contributes to the processes of collaborative brainstorming for a group idea.