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The effect of extroversion on communication: Evidence from an interlocutor visibility manipulation

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Abstract

In this study we test how introversion–extroversion affects language and gesture use depending on whether the interlocutor is visible to the speaker. Adults described arrays of objects, half the time with a screen occluding their interlocutor and half the time with the interlocutor visible. When participants could not see their listener, they used more words, particularly concrete words and tended to gesture more. This difference was moderated by extroversion for gestures (i.e., extroverts gestured more when their interlocutor was occluded) but not for speech. We argue that visibility of a listener may influence how speakers use nonverbal feedback from their interlocutors differentially according to extroversion. In particular, visibility and personality may impact how speakers use gestures when they do not know whether their interlocutor has understood them.

Keywords: Gesture; Language access; Interlocutor visibility; Personality; Individual differences

1. Introduction

Speakers adapt their communication to the knowledge of their interlocutors (Naher and Graham, 2006; Tanenhaus and Brown-Schmidt, 2008). Consequently, when speakers are unable to see their interlocutors they communicate differently than when their listeners are visible (Alibali et al., 2001; Rimé, 1982). The purpose of the present study was to test how language and gesture change when people are unable to see their interlocutor. Furthermore, we aimed to see if extroversion-introversion affects communication when interlocutor visibility changes.

1.1. Interlocutor visibility effects on language

Several studies have found interlocutor visibility effects on language use (Alibali et al., 2001; Rimé, 1982). For the purpose of our study, differences in length of discourse are particularly important. Alibali et al. (2001) found that speakers used slightly more words in a condition in which the interlocutor was behind a screen than when the interlocutor was visible, but this was not a reliable effect. Boyle et al. (1994) used a cooperative problem-solving task called a map task, to see whether interlocutor visibility had any effect on participants' successful communication. Participants both gave and followed directions from other participants. Boyle et al. found that speakers required a higher number of words when they were unable to see their listener in order to be successful at the task. Taken together, these studies suggest that when speakers cannot see their listeners they tend to speak more.

1.2. The role of gestures in communication

Gesture use may also change depending on whether a speaker can see his/her interlocutor. Co-speech gestures are meaningful hand and arm movements made while

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speaking (McNeill, 1992). Representational gestures refer to the movements that look like the referent, either literally or metaphorically, such as bringing both hands together to form a heart shape while talking about either a heart or love (McNeill, 1992). Deictic gestures refer to spatial locations, such as pointing to a particular spot (McNeill, 1992). Gestures probably serve a variety of functions for speakers, including accessing words and phrases (Krauss et al., 1995), planning what one wants to say (Kita, 2000), and making a message clear to a listener (Beattie and Shovelton, 1999). Interpersonally, gestures may be part of the collaborative efforts to create mutual shared understandings between the participants in communication (Holler and Wilkin, 2011). Gestures, specifically representational gestures, are particularly likely to occur when speakers are talking about spatial concepts (Hostetter and Alibali, 2008).

1.2.1. Interlocutor visibility effects on gesture

Speakers have been found to gesture in situations when the listener is unable to see them (Bavelas et al., 2008; Iverson and Goldin-Meadow, 1998). For example, Iverson and Goldin-Meadow (1998) videotaped participants working through a series of reasoning tasks that have been known to elicit gestures. They found that blind speakers gestured at a similar rate to sighted speakers, and that both blind and sighted speakers gestured even when their listener was blind. These results are consistent with the argument that co-speech gestures can help speakers access language for speaking (Kita, 2000; Krauss et al., 1995; Smithson and Nicoladis, 2013). Nevertheless, several studies have shown that people produce more representational gestures when they can see their interlocutor than when they cannot (Alibali et al., 2001; Krauss et al., 1995). It has also been found that people produce a higher gestural rate when they think someone will see them later on (Bavelas et al., 2002). These results are consistent with the argument that co-speech gestures can also serve to help the listener interpret and understand speech (Beattie and Shovelton, 1999; Jacobs and Garnham, 2007; Mol et al., 2011; Özyürek, 2002). One study showed that the use of gestures did not change depending on interlocutor visibility (Bavelas et al., 1992).

In sum, interlocutor visibility has shown a variety of different results on the use of gestures across studies.

1.2.2. Individual differences in gesture use: Extroversion as moderator

Part of the reason that different studies have shown different results is that there may also be individual differences in language and gesture use. For example, one study showed that individuals' working memory capacity could predict how frequently they gestured (Smithson and Nicoladis, 2013). Another possible individual factor is personality, a factor that could be related to working memory and other aspects of executive functioning (Campbell et al., 2011; Gray and Braver, 2002; Lieberman, 2000). In this study, we focus on extroversion. Extroversion has behavioral facets including gregariousness and expression of positive affect (Côté and Moskowitz, 1998). Some studies have indeed found such correlations between extroversion and language/gesture use. One study found that out of the Big Five, extroversion was the dimension most strongly related to gesture use (Hostetter and Potthoff, 2012). Previous studies have generally found that speakers were perceived as more extroverted when they spoke more and faster, and gestured more (Cuperman and Ickes, 2009; Lippa, 1998; Neff et al., 2010); these studies did not, however, directly measure extroversion. One study found a positive correlation between number of words produced and self-ratings of extroversion, as well as a negative correlation with the concreteness of words used (Gill and Oberlander, 2002). Another study found no correlation between gesture frequency and self-rating of extroversion (Nagpal et al., 2011).

Effects of extroversion on language and gesture use might be observed when comparing across conditions requiring different needs for the interlocutor. For example, one study showed that it is the interaction between visibility and extroversion that matters for gesture. Hostetter and Potthoff (2012) had participants describe nouns to a listener, who was required to guess which noun the participant was describing. Half the trials were completed in a way that allowed visual access between the listener and the speaker, and half involved a wooden screen that blocked visibility. Hostetter and Potthoff found a negative association between the difference in gesture rate between the visible and screen conditions (i.e., the gesture rate in the screen condition subtracted from the gesture rate in the visible condition) and extroversion. The vast majority of the difference scores were above zero, indicating that speakers tended to gesture at a higher rate when able to see their listener. This was particularly true of introverts; high extroverts showed little difference between conditions. They argued that extroverts gestured not to engage the listener but rather as a result of an abundance of energy.

An alternative explanation, one we test here, is that extroversion moderates both language and gesture use on the interlocutor visibility effects. Extroverts might be particularly adept at adapting their communicative strategies for the needs of their interlocutor. For example, extroverts might speak more when they cannot see their interlocutor in order to explain more clearly what they mean. They might also use more specific, concrete words that would more immediately allow the interlocutor to understand their meaning. Both discourse length and the use of concrete, imagistic words have been linked with increased gesture use (Rauscher et al., 1996; Stevanoni and Salmon, 2005), most likely through activation of visuo-spatial imagery (Hostetter and Alibali, 2008; Smithson and Nicoladis, 2013).

1.3. This study

In this study we first tested if interlocutor visibility has an effect on language and gesture use. Specifically, we tested if the visibility of the interlocutor is linked with