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## Cultural diversification of communicative gestures through early childhood: A comparison of children in English-, German-, and Chinese-speaking families

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## ABSTRACT

Previous literature has demonstrated cultural differences in young children's use of communicative gestures, but the results were mixed depending on which gestures were measured and what age of children were involved. This study included variety of different types of gestures and examined whether children's use of communicative gestures varies by their cultural backgrounds and ages. 714 parents of children (6–36 months old) from U.S.A. English-, German-, and Taiwan Chinese-speaking countries completed the questionnaire on their children's use of each gesture described in the survey. We used logistic regressions to examine the effect of children's culture and age, and the interaction effect (culture  $\times$  age). Children were more likely to use all gestures except reaching, showing, and smacking lips for “yum, yum” as their age increases. In addition, there were gestures that showed significantly different probabilities across children's cultural backgrounds. A significant interaction effect was shown for five gestures: reaching, showing, pointing, arms up to be picked up, and “quiet” gesture. Results suggest that the influence of culture on young children's communication emerges from infancy.

## 1. Introduction

Language is the way to socialize cultural values and expectations (Sapir, 1929; Schieffelin & Ochs, 1986). However, communication is not limited to spoken language, particularly in early childhood. As core communication tools, nonverbal modes are important parts of communication. In particular, language development in early childhood includes young children's preverbal communication through gestures. In fact, using gestures is a precursor to children's later language development (e.g., Goodwyn, Acredolo, & Brown, 2000; Kelly et al., 2002), and even after they acquire verbal language, children still use gestures to supplement their verbal language by combining gestures with speech (Morford & Goldin-Meadow, 1992; Özçalışkan & Goldin-Meadow, 2009). Considering this relation between language and gesture, gesture, in addition to language, may also reflect culture. Previous studies on adults' use of gestures revealed that there is a difference in their gesture use across cultures (Kita & Özyürek, 2003; Wilkins, 2003). Given that Pizer, Walters, and Meier (2007) highlighted a role of cultural socialization by explaining the impact of parents' use of gestures when they communicate with their infants, we can expect to find cultural differences in young children's use of gestures as we see those differences in adults' gestures.

The individualism-collectivism perspective (Triandis, 2001; Tamis-LeMonda et al., 2008) is the framework commonly used in cross-cultural research. A series of Keller's cross-cultural studies on infant development (Keller, 2003, 2007; Keller & Otto, 2009;

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Keller, Yovsi, & Voelker, 2002) applied this framework to their research. They suggested that infants in interdependent (collectivistic) cultures are socialized based on parents' goals that stress relatedness, while infants in independent (individualistic) cultures are socialized based on parents' autonomous socialization goals. For the present study, we selected three cultural groups-U.S.A. English, European German, and Taiwan Chinese language users- as the U.S.A, Germany, and Taiwan are representative developed countries located in three different continents (North America, Europe, and Asia). Since this is an exploratory study, we do not have specific hypotheses on which gestures reflect the value of relatedness or autonomy. However, we assume that cultural differences in infants' use of some gestures might be shown due to differences in parental socialization.

There is a robust and growing body of research on cultural differences in early child development, yet only recently has this cross-cultural research included infants' communicative gestures (e.g., Blake, Vitale, Osborne, & Olshansky, 2005; Iverson, Capirci, Volterra, & Goldin-Meadow, 2008; Liskowski, Brown, Callaghan, & deVos, 2011). Thus, our current study explores whether there are cultural differences in young children's use of a variety of gestures. A literature review by Kita (2009) on cross-cultural differences in gestures of both adults and children indicated that gestures vary across cultures due to conventions of form-meaning association (e.g., emblem such as 'a ring formed by the thumb and the index finger' can mean 'OK/good,' but can mean 'zero,' or 'bodily orifice' in some cultures), diversity in spatial cognition (especially for gestures which represent spatial concepts), linguistic diversity (words and structures vary by languages used in each culture), and diversity in usage of gesture for communication (e.g., whether gesture use in general is considered polite; how gesture is used to elicit responses in conversation; how much space is used to gesture; and how often gesture is shown). However, Kita's (2009) study focused on gestures that accompany speech, rather than gestures used by preverbal children.

Previous research has demonstrated that gestures have communicative functions with or without speech. Studies of infants' pointing have demonstrated that 12-month infants pointed in order to request something they want (Bates, Camaioni, & Volterra, 1975), direct and share others' attention and interest (Bates et al., 1975; Liskowski et al., 2004), and provide information to others (Liskowski, Carpenter, Striano, & Tomasello, 2006). In addition, gestures can provide supplementary information to that communicated via speech (Goldin-Meadow, 1999), and preverbal children can invent and use symbolic gestures to represent specific concepts, including requests, objects, and actions (Acredolo & Goodwyn, 1988). Gestures, therefore, serve important communicative functions for preverbal children and are also relied upon for a number of functional uses by those who are in the process of developing language proficiency (emergent communicators).

### 1.1. Cultural similarities in early gesture

Given how early they develop, gestures, serving a variety of simple communicative function, may be universal across cultures. For example, Liskowski et al. (2011) found cross-cultural commonality in 10-14 month-old infants' pointing – a common cue that shows infants are developing joint attention and intentional communication (Liskowski et al., 2004) – across five countries: Papua New Guinea, Japan, Peru, Mexico, and Canada. While interacting with their caregivers, the majority of infants in each country pointed with the index finger, rather than whole-hand, and with similar frequencies. Likewise, Blake et al. (2005) found cultural similarities in communicative gestures used during the transition to language among 9- to 15-month-old English-Canadian, French, Japanese, and Italian-Canadian infants. In their study, the frequency of comment gestures (pointing not used as a request, waving bye-bye, head shaking/nodding, and showing), object exchange gestures (giving, taking, and offering), and agency gestures (seeking assistance, giving and offering to request something, and taking hand) increased during the period from 9 to 15 months for infants in almost all countries, while the frequency of reach-request gestures (reaching, pointing used as a request, and arms up/down) and emotive gestures (flapping/waving arms, clapping/clapping hands, and bouncing) decreased. Although Blake et al. (2005) study was remarkable with regard to considering different repertoire of gestures, their major focus was on the common patterns of change during the language transition period across cultures rather than cross-cultural differences that may appear during this period. Therefore, our study aims to examine cross-cultural differences, as well as similarities, in young children's communicative gestures in various types of gestures.

### 1.2. Cultural differences in early gesture

Despite evidence for cross-cultural commonality in pointing frequencies and increasing use of comment, object exchange, and agency gestures, there is evidence of cultural differences in use of early gestures. Salomo and Liskowski (2013) compared Dutch, Mayan, and Chinese infants' deictic gesture and suggested evidence of cultural difference in the amount of deictic gestures they used. In their study, Chinese infants gestured more than Dutch infants, and in turn, Dutch infants gestured more than Mayan infants. In addition, Iverson et al. (2008) found cultural differences in the size of the gestural repertoires of Italian as compared to American young children by tracking them during the 5-month period prior to the acquisition of two-word utterances. According to their study, Italian children used representational gestures, which include iconic gestures (gesture representing the action or shape of the object, e.g., bringing empty hand to lips for "eat"), and conventional gestures (gestures taught to children as part of social routines and games, e.g., waving hand as a greeting, headshake for "no"), as well as deictic gestures (e.g., pointing and showing), while American children mainly used deictic gestures rather than representational gestures. Moreover, while representational gestures used by American children were mostly conventional gestures, Italian children's representational repertoire mostly included iconic gestures. Iverson et al. (2008) explained that the richness in Italian children's gestures use was influenced by their gesture-rich culture, indicating the possibility of distinct differences in preverbal children's gestures among cultures. While their findings were only for the 5-month period before infants acquire two-word utterances, our study uses an expanded age range, focusing on 6-36 month-old

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