

# Factors Affecting Accent Identification and the Implications for Theories of Language Acquisition

Chutian Zhao<sup>1</sup>

<sup>1</sup> Division of Psychology and Language Sciences, UCL, London, United Kingdom

Correspondence: Chutian Zhao, Division of Psychology and Language Sciences, UCL, London, United Kingdom.

doi:10.56397/SSSH.2022.11.11

## Abstract

Previous studies have shown that various factors were found to affect the intelligibility of children to identify unfamiliar accents: children's age and developmental stage, social interactions and language background and experiences. This paper aims to figure out the factors affecting accent identification and the implications for theories of language acquisition by summarizing and comparing several studies with different experimental designs.

**Keywords:** intelligibility, second-language acquisition, language experience, social interaction

## 1. Introduction

Due to the recent increase in immigration in the UK, people are more likely to encounter someone with foreign accent (Dunton & *et al.*, 2011). According to a recent annual demographic survey in the UK, 9.2 percent of people living in the UK in 2021 will be of non-British nationality, up from 7.8 percent in 2012 (Office for National Statistics (ONS), 2021). Among these immigrants, 433,150 Chinese-born people were residents in the UK in 2011. And 138,000 people born in Australia were residents in the UK in 2017, and the number has been increasing. Mandarin-accented English and Australia-accented English represent foreign accents and regional accents respectively. As a result of this trend, there has been a surge in research on the impact of a foreign accent on language understanding, since people are increasingly more likely to encounter someone with a different accent in their daily lives. For example, the study carried out by Newton and Ridgway (2016) asked the participants to repeat short English sentences in order to investigate whether an unfamiliar novel accent affects the comprehension of simple sentences amongst school-aged children. Another study conducted by Barker and Turner (2015) examined how a foreign accent affected pre-schoolers' word recognition and story comprehension in order to illustrate how talker-specific information influences listeners' language processing in various experimental listening tasks. Among these studies, how children acquire and develop an awareness of structured variation is an essential part.

## 2. Factors and Theories Affecting Acquisition

According to previous studies, various factors were confirmed to affect the intelligibility of children to identify unfamiliar accents. Firstly, children's age and developmental stage can affect language development. Furthermore, language acquisition is influenced by factors of social network and interactions—specifically, surroundings, environments and interactions with parents and peer groups. Lastly, according to McCarthy *et al.* (2014), language background and experiences such as the differences between monolinguals and bilinguals can also have a great impact on socio-linguistic awareness.

## 3. Age and Developmental Stage

Some important time nodes for children's language development and developmental theories revolve around the

ways in which children acquire structured variation. According to the timeline of universal phonological development, infants between 18 to 20 months could differentiate newly-learned words, even if they have phonetic similarities. For example, in the experiment conducted by Werker *et al.* (2002), the 20-month-old infants did notice the differences when being exposed to phonologically similar words “*bih*” and “*dih*” and they developed the ability of the so-called word-object pairings. Children also have the ability to find out mispronunciations for example “*vaby*” for “*baby*”, indicating that infants’ perceptions of similar words are phonetically very precise (Swingle & Aslin, 2000). This finding also suggests that around the age of 18 months, infants transitioned from a word-based to a segment-based phonological system. Furthermore, some researchers believe that fast mapping is especially important to language acquisition in young children, and that it may explain the prodigious rate at which children acquire vocabulary.

Additionally, the Swiss psychologist Jean Piaget proposed four cognitive developmental stages for children. In this essay, the experiments illustrated only involve children between 2-7-year-old, so such experiments only focus on the first two stages. From sensorimotor to preoperational stage, children tend to change from egocentric to symbolic, which allows them to gradually develop their mental schemas. Because of their development, they can quickly “accommodate” new words and situations. As a result, children’s language development accelerates during this period (between the ages of 2 and 7 years).

According to these two above-mentioned theories, it is highly possible that age and developmental stage contribute significantly to the way children acquire structured variation. Several studies suggest that developmental differences in children affect their ability to percept and respond to unfamiliar accents. Schmale and colleagues tested the same group of children in 2011 and 2012. In 2011, those children aged 2 years and 6 months had difficulty identifying known-words with another accent. However, they were able to process these words with an unfamiliar accent one year later, even with slower responses. In another experiment, Nathan *et al.* (1998) recruited children aged 4–7 years old, born and raised in London, and asked them to recognize words pronounced in their local London accent and a Glaswegian accent. To be specific, the Glaswegian accent is rhotic: the speaker in this experiment uses a postalveolar approximant after the vowel in words like bear and butter. This is in stark contrast to the London accent, where the postalveolar approximant is only found prevocally. During the experiment, participants were given one word-list presentation in the experimental accent (Glaswegian) and another word list presentation in their own accent (London). As a result, age correlated significantly with the accent. This significant correlation indicated the influences that age had on accent identification. The mean scores show that older children outperformed younger children in both the London and Glaswegian accents. Although both age groups have a better performance with a London accent, the older children have higher and more balanced scores in both accents. It can be inferred that even they all found it harder to identify unfamiliar accents, older children responded more quickly with higher accuracy than younger children.

These findings match the timeline of universal phonological development and Piaget’s theories. It can be concluded that age and developmental stage play essential roles in children’s language acquisition.

#### 4. Social Interaction

Social interaction is essential in daily life, especially for children’s language development. Jerome Bruner (1961) and Lev Vygotsky (1962)’s theories of social interaction both focus on surrounding and environmental elements, encompassing interactions with teachers, parents and peer groups. Bruner believes that teachers should motivate students to discover their own principles; to accomplish this, the teacher and students should engage in active conversations. Furthermore, learning is an active social process in which learners form new ideas based on their prior knowledge. Vygotsky believes in social constructivism and claimed it was an integral part of learning. He attaches great importance on dialogues and other forms of interactions between the learner and others, and he firmly believes that social interaction is a critical component of successful cognitive and intellectual growth.

Many experiments show that social interaction may influence children’s ability to acquire language. Foulkes *et al.* (1999) made an investigation into the speech of children aged 2-4 years in the same community, which aimed to understand how variant patterns come to be acquired. This study focused on four children’s productions of (t), which was a complex variable in adult speech. The children produced different variants in appropriate phonological contexts, demonstrating a mastery of adult patterns. But both girls and boys adhered closely to the patterns of local young working women but not young men or old speakers. This experiment suggested that at early stages of development, children are mostly influenced by the phonetic patterns of their mothers or primary caregivers.

Social network characteristics are important for children’s language development. Kerswill & Williams (2000) conducted an experiment to test whether the innovative use of language by children is linked to their social circle within a peer group. The experiment focused on the variable (ou), the fronting and unrounding of the offset of the diphthong /əʊ/ in words of the goat glass. The participants comprised children aged 4, 8 and 12 years.

Individual speakers' proportions of each variant were calculated for each subject group. As a result, all of the high scorers were very well-integrated into a group of friends: they were sociable and are frequently mentioned by other children as friends. Low scorers, on the other hand, were isolated from their peers. So it can be concluded that the main factor for children's language development is their orientation towards the peer group.

In another study, Paquette-Smith and colleagues (2019) examined the development of accent-based friendship in children growing up in Toronto, a linguistically-and culturally-diverse city. The participants were all children speaking Canadian-accented English. They hypothesized that the speaker's accent and the children's experiences in their daily life would modulate their preferences, even though the children had grown up in a linguistically-diverse community. The results showed when the differences between accents were easier to detect, children showed stronger preferences for in-group members. For instance, when children were paired with Korean-accented speakers, their preference for Canadian-accented in-group members was stronger than when they were paired with British-accented speakers. Therefore, as a group, even for children living in multilingual and multicultural areas, they demonstrated social preferences for peers speaking a regionally-dominant accent. The strength of children's preferences was modulated by the speaker's accent (regional vs. non-native), but not by children's individual exposure to accented out-group members in daily life.

Above three studies emphasize the importance of social interaction with family or peers, which correspond with Bruner and Vygotsky's theories. Therefore, children's language development and acquisition are closely associated with social interaction.

### 5. Differences Between Monolingual and Bilingual

At present, the majority of the world's population can communicate in a language other than their mother tongue. This trend influences cognitive abilities positively. Researchers have demonstrated that bilingualism could result in more efficient, more resilient, and stronger executive control processes. According to Carlson & Meltzoff (2008), bilingual children outperform monolingual children on executive function tasks such as inhibition control, cognitive flexibility, and working memory, when compared to their monolingual peers. Furthermore, bilingualism has benefits at both ends of the age spectrum: bilingual children as young as 7 months can adjust to environmental changes, while bilingual seniors have less cognitive decline (Shook & Maria, 2012). Based on this theory, bilingual and multilingual speakers have better cognitive ability, so they can process different accents much more easily than monolingual speakers. Related experiments are as follows.

Firstly, Evans and Lourido (2019) examined whether early exposure to variation affects accent categorization. During the experiment, 60 kids (30 monolinguals and 30 bilinguals) aged from 5-7 years were asked to comprehend talkers in two of three accents: local accent, unfamiliar regional accent and unfamiliar foreign accent. The results demonstrated that language background greatly affected the children's ability to categorize talkers. Specifically, bilinguals could categorize talkers in all accent conditions whereas monolinguals could only do so under the local-foreign accent condition.

Even though some researchers argued that late bilinguals may perform worse at identifying unfamiliar sounds due to differences in neural plasticity, others disagreed. There is a study focusing on children's exposure to their family language and the host country's language in immigrant communities (McCarthy & *et al.*, 2014). This experiment investigated how 55 children perceived and produced the English voicing contrast (40 Sylheti-English sequential bilinguals and 15 English monolinguals). In this study, there were two experiments, that is to say, children were tested twice. The results of experiment 1 suggested that initially bilingual children used their L1 (Sylheti) when perceiving and producing English plosives; moreover, the results of experiment 2 showed that the bilingual children also had the ability to establish L2 phonemic categories that matched those of their monolingual peers, indicating that even late bilinguals could also identify and adapt to different accents.

According to such studies, the differences between monolinguals and multilinguals (with primary variations in language background) can significantly affect children's ability to adapt to different accents.

### 6. Conclusion

This essay analyses and discusses the impact of unfamiliar accents on language comprehension, with support of evidence from various experiments. Three key elements are identified: 1) age and developmental stage, 2) social interaction with parents, teachers or peers, and 3) different language experiences. The limitation of the existing literature is that the number of participants in experiments is small. Besides, gender imbalance of participants in experiments may generate biased results. Furthermore, the impact of some other factors, such as parents' social-economic status and parents' education attainment, have not been examined by existing literature, which could be the directions of future research.

### References

Bruner, J. S., (1961). The act of discovery. *Harvard Educational Review*, 31, 21-32. Carlson, S. M. & Meltzoff,

- A. N., (2008). Bilingual experience and executive functioning in young children. *Developmental science*, 11(2), 282-298.
- Dunton, Bruce, C. & Newton, C., (2011). Investigating the impact of unfamiliar speaker accent on auditory comprehension in adults with aphasia. *International Journal of Language & Communication Disorders*, 46(1), 63-73.
- Evans, B. G., & Lourido, G. T., (2019). Effects of language background on the development of sociolinguistic awareness: The perception of accent variation in monolingual and multilingual 5-to 7-Year-Old children. *Phonetica*, 76(2-3), 142-162.
- Foulkes, P., Docherty, G., & Watt, D., (1999). Tracking the emergence of sociophonetic variation. In *Proceedings of the 14th International Congress of Phonetic Sciences*, pp. 1625-1628, August.
- Kalina, C., & Powell, K. C., (2009). Cognitive and social constructivism: Developing tools for an effective classroom. *Education*, 130(2), 241-250.
- Kerswill, P., & Williams, A., (2000). Creating a new town koine: Children and language change in Milton Keynes. *Language in society*, 29(1), 65-115.
- McCarthy, K. M., Mahon, M., Rosen, S., & Evans, B. G., (2014). Speech perception and production by sequential bilingual children: A longitudinal study of voice onset time acquisition. *Child development*, 85(5), 1965-1980.
- Nathan, L., Wells, B., & Donlan, C., (1998). Children's comprehension of unfamiliar regional accents: a preliminary investigation. *Journal of child language*, 25(2), 343-365.
- Newton, C., & Ridgway, S., (2016). Novel accent perception in typically-developing school-aged children. *Child Language Teaching and Therapy*, 32(1), 111-123.
- Pastorino, E. E., & Doyle-Portillo, S. M., (2021). *What is Psychology? Foundations, Applications, and Integration*. Cengage Learning.
- Paquette-Smith, M., Buckler, H., White, K. S., Choi, J., & Johnson, E. K., (2019). The effect of accent exposure on children's sociolinguistic evaluation of peers. *Developmental Psychology*, 55(4), 809.
- Schmale, R., Cristia, A., & Seidl, A., (2012). Toddlers recognize words in an unfamiliar accent after brief exposure. *Developmental Science*, 15(6), 732-738.
- Schmale, R., Hollich, G., & Seidl, A., (2011). Contending with foreign accent in early word learning. *Journal of child language*, 38(5), 1096-1108.
- Shook, A., & Marian, V., (2012). The cognitive benefits of being bilingual. *Cerebrum*.
- Vygotsky, L., (1962). *Thought and language* (1962 edition). Cambridge, MA: Mit Press.
- Werker, J. F., Fennell, C. T., Corcoran, K. M., & Stager, C. L., (2002). Infants' ability to learn phonetically similar words: Effects of age and vocabulary size. *Infancy*, 3(1), 1-30.

### Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).