



The Influence of Gestures on Enhancing Speech Perception and Comprehension of English Language Learners (ELLs): a Literature Review

Khadija Albaker and Ahmed Abubakar

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The Influence of Gestures on Enhancing Speech Perception and Comprehension of
English Language Learners (ELLs): A Literature Review

Khadija Albaker & Ahmed Abubakar

22001120@student.buid.ac.ae / ahmed.abubakar@buid.ac.ae

BUiD – Education

Abstract

The research aims to find out how gestures may improve English Language Learners' (ELLs') comprehension and speech perception in Fujairah's elementary schools. Communication and comprehension are hindered for ELLs because of their difficulty perceiving and understanding speech. The goal of the research was to determine if gestures and gestural strategies foster perception and understanding of speech. Consequently, it is discovered that gestures not only improve understanding but also influence and promote language learning. As a result, certain pedagogical applications that might assist English teachers in enhancing their students' English language learning through the implementation of gestural techniques were proposed. The results of this research should be used to motivate educators to participate in conferences, seminars, or professional development training that emphasizes the efficient and innovative use of gesturing in classrooms. Teachers may employ mimesis, imitating, and TPR to create a lively and conducive learning environment, especially when introducing new concepts.

Keywords: English Language Learners (ELLs), comprehension perception, speech perception, gestures

Introduction

Background

Language is an exceptionally helpful tool that utilizes unique elements. Speech and gestures are integral elements of communication that frequently collaborate to transmit meaning and enhance comprehension. Also, they are extremely interdependent and mutually influence one another. Decades of studies have shown the close relationship between gestures, cognition, and language (e.g., Goldin-Meadow, 2003; McNeil, 1992) in Hostetter & Alibali (2018). Throughout the history of philosophy, there have been discussions on the correlations between gesture and speech. Professional speakers' gestures, such as those of actors and orators, were the subject of the earliest literature in this discipline (Feyereisen & De Lannoy, 1991). As stated in Feyereisen & De Lannoy (1991), Quintilian, a Roman educator and rhetorician, along with other scholars, claimed that hand gestures were universal, a concept that gained popularity in the 17th and 18th centuries. Therefore, gestures were thought to symbolize a preceding, more primitive kind of language. In addition to gestures and facial expressions, speakers have an extensive array of other possible clues at their disposal that they might use to support their statements. A wider audience is becoming aware of the strong relationship between spoken language and physical gestures. To elaborate, speech perception during face-to-face interaction and communication is a multimodal process that incorporates prosodic cues (indications of sentence structure and intended meaning conveyed by the speaker's pitch, intonation, stress, and pauses) and visual cues (body language, facial expressions, gestures, etc.) (Massaro & Simpson, 2014). As stated by Chandrasekaran, Trubanova, Stillitano, Caplier & Ghazanfar (2009), there is a strong correlation between auditory output and visual speech signals, which include lip, jaw, tongue, and larynx movements. Such cues are of particular benefit to second language learners in the language acquisition process because their availability can

result in improvements in effective comprehension and response accuracy. On the other hand, both gestures and speech have distinctive characteristics, making them unable to entirely substitute one another (Feyereisen & De Lannoy, 1991). Not all phrases or keywords in a language can be effectively translated and conveyed by gestures or other clues, particularly in the context of second language acquisition. Moreover, these cues may generate potent illusions, such as the McGurk illusion, when conflicting auditory and visual stimuli lead to a perceptual outcome that differs from each input modality (McGurk & MacDonald, 1976). When a visual /ga/ is paired with aural /ba/, it often leads to the perception of /da/. Various illusions may use visual clues to change the apparent content or location of an auditory input. This issue is often observed among second language learners.

Macedonia & Kriegstein (2012) found that the way words are stored in the brain involves complex multimodal networks integrating sensory and motor actions from the learning process. In this context, gestures may enhance the sensory encoding of a word or phrase, hence enhancing its resistance against decay. Gestures may facilitate the embodiment of abstract words by physically producing them. They suggest using gestures as a teaching technique that combines physical movements and mental processes. Likewise, Morett, Gibbs & MacWhinney (2012) suggest that using gestures during conversations improves the learning of the second language by aiding in communication, acquisition, and memory retention. A study by Krahmer & Swerts (2007) found that the apparent prominence of the target words is significantly influenced by visual beats. The associated term is produced with more emphasis when a speaker performs a beat gesture, raises an eyebrow, or nods their head. Furthermore, they found that participants interpret a speaker's visual beat—also known as "seeing beats"—as being more significant than when they do not see the beat gesture. In addition, gesture benefits both the speaker and the listener, and it directly affects listener comprehension apart from its impact on speech output.

Discussion is held about the implications for comprehending the importance of gestural information in telecommunications (Driskell & Radtke, 2003). In contrast, research by Hoetjes, Krahmer, and Swerts (2014) indicated that consideration was also given to elements like mutual visibility and prior experience that affect communication ease. The idea that being unable to gesture has an impact on monotony or fluency of speech was not supported by any studies. Another perception test revealed that participants could not tell whether someone was gesturing or not.

The above relevant publications about the impact of gestures on improving speech perception and comprehension were thoroughly reviewed prior to proceeding with the review. It is crucial because it defines where, how, and why the planned investigation would be groundbreaking in the area of inquiry (Cohen, Manion & Morrison 2018).

Problem Statement

Although gestures have been studied and explored as a means of improving second and foreign language perception and acquisition, there is a lack of empirical studies focusing on how gestures improve speech comprehension and perception of English Language Learners (ELLs) in primary schools in Fujairah. The existing literature lacks coverage of this specific subject, therefore, this paper focuses on it.

Aim of the Review

This review aims to investigate the influence of gestures on improving speech perception and comprehension among English Language Learners (ELLs).

Research Questions

Developing suitable research inquiries yields several outcomes: it offers direction for exploring existing literature, shaping study methodologies, identifying essential data, sourcing it, and devising strategies for analysis and documentation. Additionally, it ensures researchers remain focused on their subject of investigation,

reducing the likelihood of tangential pursuits (Bryman & Bell, 2011). Therefore, the following questions were formulated the literature review:

What is the influence of gestures on boosting speech perception and comprehension among English Language Learners (ELLs)?

What gestural approaches are implemented to aid in speech perception and comprehension for English Language Learners (ELLs)?

To what extent do such approaches promote speech perception and understanding from teachers' perspectives?

Methodology

To find trends, variations, and inconsistencies in the literature, this review adhered to Xiao & Watson's (2019) systematic literature review guidelines. Developing inclusion and exclusion criteria, formulating a search plan, carrying out the study selection procedure, extracting data, evaluating the quality of the research, analyzing and synthesizing data, interpreting, and reporting are the processes that were followed (Mohamed Shaffril, Samsuddin & Abu Samah, 2021). A total of twelve publications were chosen out of many for their relevance from the several databases that were searched, including, Academia, Google Scholar, ScienceDirect, SAGE Journals, Research Gate, ProQuest, and Buid Library. English Language Learners (ELLs), gestures, speech perception, speech comprehension, gestural approaches, and teachers' perception were the terms that were used. The papers that fit this literature review were then selected using the inclusion and exclusion criteria listed below.

Inclusion criteria:

- Review research publications in peer-reviewed journals.
- Studies about gestures and speech perception and comprehension.
- Studies that focus on English Language Learners.

- Articles that explore gestural approaches and their implementations.
- Research articles about teachers' perception of the application of gestures.

Exclusion criteria:

- Studies that do not specifically investigate the relationship between gestures and their influence on the perception and comprehension of speech.
- Sources such as conference abstracts, dissertations, or unpublished materials.
- Research that specifically targets adolescents, including middle and high school students as well as college students.
- Articles that only concentrate on distinct extraneous elements unrelated to the speech perception and comprehension of English Language Learners.
- Publications written in languages other than English or those that have not been translated into English.

Initially, data on the research design, methodology, and findings about gestures, speech perception, and speech comprehension were gathered from the articles before the inclusion and exclusion criteria were applied. After that, a thorough analysis of the gathered data was conducted to find recurrent themes, patterns, and relationships among the research. This investigation revealed certain variations and similarities that provide insight into how gestures improve English Language Learners' (ELLs') speech perception and comprehension. Significant connections and insights were uncovered by this data synthesis.

Subsequently, the gathered data was evaluated with respect to theory, practice, and implications. The practical significance and effect of the results on English lesson interventions and ELL intervention programs that address speech perception and comprehension issues were examined. The limitations of the current research were also highlighted, emphasizing any shortcomings or areas in need of further study. Furthermore, an analysis of the findings' implications for language perception

and the use of gestural strategies linked to effective language comprehension was part of the interpretative process. These factors provided a comprehensive perspective on the details of the effects of gestures on ELLs' speech perception and comprehension. Lastly, recommendations for potential future study directions were provided to wrap up the review. Potential directions for further research were suggested in light of the gaps and restrictions that were found in order to expand our knowledge of the processes by which the implementation of gestures and gestural approaches impact the speech perception and comprehension of ELLs, particularly primary schoolers. These suggestions were meant to serve as a roadmap for say something about upcoming scholars as they built on the body of information already in existence and addressed open-ended issues in this important field of inquiry.

Results

Studies on gestures, speech perception, comprehension, second language learners (English Language Learners), gestural strategies, and teachers' perspectives are included in the review of the literature. The findings are presented according to the themes that emerged.

Gestures, Speech Perception & Speech Comprehension

A gesture is defined as any movement or alteration in a body segment's position by Feyereisen & De Lannoy (1991). It is also indicated as actions primarily that develop into ways to communicate. Therefore, it is visually directed to achieve a goal in the physical world. Hostetter & Alibali (2018) stated that these movements (gestures) seem to suggest that the hands instinctively mirror the thoughts. It is believed that gesture and speech work together to create a unified system of meaning during language formation, as suggested by Kendon (1986) and McNeill (1992) in Kelly, Healey, Özyürek & Holler (2015). Gestures and prosody also interact in the

process of speech production (Cravotta, Busà & Prieto, 2019). Yet, gesture is holistic and imagistic, whereas speech gives information sequentially via arbitrary symbols. Collectively, they convey a message that is more comprehensive than each modality could on its own (Clark 1996) in Kelly, Healey, Özyürek & Holler (2015). Similarly, it would seem that understanding a speaker's message completely requires paying attention to both modalities. Morett, Gibbs & MacWhinney (2012) found that participants exhibited a higher frequency of iconic gestures when the meanings of second language (L2) phrases were transmitted to them via gestures and when they were engaged in communication with a visible interlocutor. In another study by Kelly, Özyürek & Maris (2010), the "integrated-systems hypothesis," which was put out lately, suggests that gesture and speech are inextricably linked and interact with one another in order to improve speech comprehension. Furthermore, both behavioural and neuroimaging studies suggest that the motor control system controls both spoken language and arm motions (Bernardis & Gentilucci, 2006). Both speech production and co-speech gesture production are associated with a neural network that is connected to Broca's region (Marstaller & Burianová, 2015). Parrill et al. (2016) reported that encouraging gestures had a favourable impact on lexical access. As well, a perspective that links the body and mind, seeing the body's movements as a valuable tool in foreign language teaching.

Given its major influence on speech perception and comprehension, the research mentioned above revealed a substantial relationship between gesturing and these two processes.

Gestural Strategies & Second Language Learning

The subject of suitable teaching methods and strategies for second language learners is a common and continuous topic in the field of education (Rosborough,

2014). Here are some strategies used to facilitate Second Language Learning and perception.

Total Physical Response (TPR)

An attempt has been made to include the body as a means of learning foreign languages. Asher initially reported this in the late 1960s. The Total Physical Response (TPR) method, developed by Asher and Price in 1967, involves students responding to teacher-given commands in the form of imperative phrases by physically acting them out. The purpose of TPR was to assist with both the comprehension and memorization of vocabulary words that can be acquired via imperatives. Carels (1981) proposed that as a way to promote memory and perception, students should also use similar gestures in addition to teachers. Learning a new word by acting it out is a complex multimodal sensorimotor experience. The embodiment process may depend on the words and gestures. Action words like "go" and "give" are followed with relevant gestures. Here, the unique phoneme chain may dock on activity-related networks. The sensorimotor patterns that are learned throughout the process of acquiring language are recreated and reinforced via enactment. Enactment has been shown to enhance memory, particularly for action words and phrases, as demonstrated by Zimmer (2001b) in Rosborough's study (2014). The most famous gestures are generally accompanied by words. An iconic gesture might relate the new phrase to a circuit that matches internal (motor) images of the notion (Macedonia, 2003) in Rosborough (2014).

Mimesis

Mimesis, which is unique to learning a second language, is concerned with the act of representing, creating images, and imitating when a learner engages in pantomime, mimicry, gestures, and shared attention with another person (Rosborough, 2014). In this context, mimesis might be seen as a "construal" or "interpretation" of the portrayal rather than a mere copy, as described by Goodman

(1968). McCafferty (2008a) presented a case advocating for the use of mimesis as a fundamental approach to teaching and learning a second language. He stated that a truly comprehensive theory of Second Language Acquisition (SLA) has to go beyond the prevailing notion of the separation between the mind and body, and instead see our tangible encounters with the world as an essential aspect of both life and learning. Japanese English learners in McCafferty's research exhibited the assimilation of American culture via the use of gestures that are uncommon in Japan. Rosborough (2014) demonstrated that mimic motions were used as a pedagogical tool to facilitate second language acquisition in students. It provided both the teacher and the student with tangible and cognitive tools to establish a common foundation for comprehending English logically in collaboration.

The research above provides support to the notion that, compared to gesture observation, gesture enactment improves second language word acquisition.

Gestures in English as a Second Language (ESL) Classrooms

One of the challenges raised in the field of education is managing different languages in a single classroom (Rosborough, 2014). This indicates that every student has a distinctive linguistic background and requires tactics that are tailored to their age and their unique set of skills and abilities when acquiring and learning a new language. Children benefit considerably from gestures than adults due to many reasons. First, verbal proficiency was taken into account in relation to the listeners' age, according to Hostetter (2011). Compared to teenagers and adults, children's linguistic abilities are less developed. Because a speaker's gesture may assist explain words and concepts that the younger audience may not grasp, they may thus stand to gain the most from seeing it. The current meta-analysis validated this theory, with research showing greater impacts of gesture on listeners who were children as opposed to adults or teenagers. According to many studies (e.g., Alibali & Nathan,

2007; Ping & Goldin-Meadow, 2008) in Hostetter (2011), gestures are crucial in communicating with children, maybe because they assist ground abstract concepts or ideas that are ambiguous in speech. Additionally, Rosborough (2014) reported that children develop their decision-making and interpretation skills based on how their physical body influences their mental viewpoint and perception. Gestures serve to illustrate actions and provide visual representations while engaging in speech, facilitating communication and constructing significance in a second language. In order to have a comprehensive understanding of the processes involved in acquiring a second language, it is necessary to closely analyze the role of gesture. This has been explored by Gullberg (1998), Gullberg and McCafferty (2008), and McCafferty and Stam (2008) in Rosborough's study (2014). Further understanding of language usage can be gained by examining the genuine conversations and practical application of second language learners in the classroom. This can be achieved by recognizing children as active participants who are fully committed to their learning and the creation of meaning. Additionally, it is important to acknowledge the influence of physical experiences in their new language environment (Rosborough, 2014). Merleau-Ponty (1962) & McNeill (2012) in Rosborough (2014) referred to actuations as "inhabiting" a language. It is the process of creating meaning by living in and using a language, encompassing speech, thoughts, and images. To fully comprehend how a second language learner dwells and interacts within a language, it is important to have a thorough understanding of how learning via the body works. In another study conducted by Rosborough (2012), gestures are seen as a fundamental component of language and communication. The study investigates how gestures contribute to the formation of meaning between a teacher and students in a second language setting. Sato (2020) found that gestures used by teachers in EFL classrooms have a significant influence on boosting L2 output, particularly in enhancing complexity and fluency. Each sort of gesture has a distinct favourable

impact on second language acquisition, however, the extent of this impact may vary. Macedonia & von Kriegstein (2012) suggest using gestures as a learning tool to connect foreign language learning with the body, thereby improving memory.

Teachers' Perspective

Educators could observe that gestures effectively enhance learning. Teachers seem to experience relatively little cognitive cost while gesturing during a speech (Goldin-Meadow, Nusbaum, Kelly, & Wagner, 2001; Hostetter, Bieda, Alibali, Nathan, & Knuth, 2006). From the perspective of teachers, including gestures in language instruction may provide significant advantages for several reasons. Gestures may enhance students' comprehension of complex topics or new vocabulary by offering visual signals that supplement verbal explanations. Morett, Gibbs & MacWhinney (2012) found that second language (L2) learners may use gestures to enhance their ability to speak and understand the target language during conversations. In addition, gestures may aid in both communication and the learning and retention of the target language, particularly vocabulary. The use of isolated gestures has been shown to improve second language (L2) word acquisition in educational settings (Allen, 1995; Kelly, McDevitt, & Esch, 2009; Tellier, 2008) as discussed in Morett, Gibbs & MacWhinney (2012).

Gestures may be essential in language instruction for imparting cultural nuances and non-verbal communication. Having a comprehensive knowledge of gestures often used in the culture of the language being learned may greatly assist students in successfully navigating social interactions. Jakšić (2017) states that gestures vary in frequency and significance across many cultures and languages. Hence, it is important to educate and instruct students about cultural disparities for them to attain a proficient level of communicative proficiency in their second language. This may be achieved by providing L2 learners with knowledge about

gestures and their significance in language and encouraging them to actively use and adjust their gesticulations when using L2.

Integrating gestures into instruction may enhance students' ability to retain and retrieve knowledge. When learners establish a connection between certain movements and words or ideas, it enhances the construction of more robust memory traces, hence facilitating their ability to retrieve the material at later stages. Macedonia & von Kriegstein (2012) discovered that complex multimodal networks connecting motor movements acquired during learning with perception from the brain representation of words. Gestures may enhance the retention of a word or phrase in memory, preventing it from decaying.

Discussion

Although different bodies of literature have investigated gesturing from diverse angles, the presented discussion supports the findings of earlier studies. It is well acknowledged that gesture impacts and encourages language acquisition, besides enhancing comprehension. In addition, all agree that gesture represents a fundamental component of language, a matter that linguists still dispute. It is a way for both teachers and pupils to communicate to build a conceptually shared basis for working together to make sense of language. Nevertheless, this paper differs from prior ones by focusing on investigating the influence of gestures on English Language Learners (ELLs) in primary classes situated in a region characterized by Arabic and Islamic culture (Fujairah).

It was noticed that there are many kinds of gestural strategies. Hence, it is necessary to come across gestural strategies that are suitable for certain age groups and a diverse range of learners with various individual differences, but it is agreed that the main characteristic of TPR and mimesis is repetition. Repetition leads to adaptation to repeated stimuli, so it helps learners retain and recall words they have previously

learned from their long-term memory. Additionally, this teacher-student relationship offers proof of how embodiment may contribute to the process of creating meaning in the classroom. Joint attention facilitates the focus on an item and understanding for a common purpose. Nonetheless, these strategies are limited to learning specific components of language, such as vocabulary or speaking and listening.

Furthermore, the perspectives of teachers are extremely valuable due to their expertise in teaching and their ability to identify the factors that contribute to language learning. From their viewpoint, gestures are seen as a crucial component of language, but they are seldom or never the primary emphasis. Typically, they rarely use gestures in their lesson plans or utilize activities that involve gestures. It was noted that teachers do not often encourage their students to pay attention to gestures and incorporate gestures into their classes. It is evident that gestures are hardly used in classrooms.

Overall, it is evident that gestures play a significant role in human behaviour and have the capacity to both mirror and influence cognitive processes.

Conclusion

In order to help students attain their full communicative potential, English as a Second Language (ESL) classes should include gestures because they are a crucial component of a language's multimodality. Regarding children's language development, gesturing often occurs before any meaningful words. Gestures reflect a method of communication that predates spoken and written language. They also seem to fit into many contemporary approaches to SLA given their nature and function (Jakšić, 2017). Therefore, this review explored gesturing as a potential teaching and learning tool for English Language Learners (ELLs), with a focus on elementary school students, due to its effectiveness and practicality. Three perspectives were used to examine gesturing: the relationship between gesturing and

speech perception and comprehension, its use in ESL classes, and the viewpoint of teachers. The findings demonstrated that gestural strategies such as total physical response (TPR), mimicking, and mimesis contribute to language or word learning, as well teachers are unlikely to experience major cognitive costs. Overall, gestures have a significant influence on speech perception and comprehension of primary learners.

As for the limitations of this review, it is evident in the absence of diversity in the study settings. Certain studies failed to indicate the age of the children and placed less emphasis on primary learners. Moreover, the availability of data from some places was limited, since the majority of research studies were mostly carried out in Western countries. Further investigation is required, especially on children from Arabic and Islamic countries and gesturing strategies that align with their cultural and ideological perspectives.

Furthermore, this paper proposes a few suggestions in light of the knowledge gained from those studies. To optimize their efficacy, educators should be encouraged to attend professional development trainings, workshops, or conferences focusing on the effective and innovative use of gesturing in classrooms, since constant development is core to learning. Additionally, to create a vibrant and conducive atmosphere for learning, teachers may use TPR, mimesis, and mimicking, particularly when presenting vocabulary or ideas.

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