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MOIRA DE IACO

Multimodal Language in the Foreign Language Classroom. A study on the Perception of Gestures by Foreign Language Teachers

Abstract

The main aim of this article is to support the hypothesis that gestures and body movements spontaneously play an essential role in the context of language teaching by analysing data from ongoing empirical research. Gestures are an integral part of the human communication system, as it has been demonstrated in several psycholinguistic studies. It is argued that there is a need to raise awareness of the potential of multimodality among language teachers and students to promote kinaesthetic learning. The theoretical framework of this paper is derived from the theories of embodied cognition in combination with the total physical response approach. Gestures and body movements are fundamental for cognitive and communicative functions such as conceptualisation, thought organisation, language production and comprehension, development and management of emotions and pragmatic aspects. The analysis of data collected as part of a study on the perception of gestures by foreign language teachers, which is presented in this paper, confirms that the use of gestures and body movements by language teachers corresponds to each of the cognitive and communicative functions mentioned above.

Keywords

multimodal language; foreign language teachers' gestures; cognitive functions of gestures; pedagogical functions of gestures; embodied cognition

Introduction

The theoretical framework of the preliminary study on teachers' perception of gestures in the foreign language classroom presented in this contribution, is derived from the theories of embodied cognition in combination with the total physical response approach (Hung, Fang, Chen 2014; Kuo, Fang, and Chen 2014; Macedonia and Knösche 2011). The latter considers the combination of physical and verbal responses with the use of students' body movements to prepare and learn verbal expressions during the language acquisition process. It encourages the physical involvement of the learner (Asher 1969). This approach can be integrated into embodied cognition studies to gain a broader perspective on the cognitive role of the body's influence on the mind in learn-

ing and to include the impact of the teacher's bodily actions on learners during instruction (Paloma, Ascione, Tafuri 2016; Stolz 2021). So, it is possible to claim that language learning can be "the result of our bodily nature shaping our perceptions and actions" by an interaction in group and with the environment, so promoting the application of the method of the cooperative learning in class (see Ferreira 2021).

Starting from this framework the main goals of this paper are:

1. Analysing data from ongoing empirical studies to show the essential role of gestures and body movements in foreign language teaching. In particular, data collected through a study on the perception of gestures by a group of 29 foreign language teachers who in autumn 2024 answered a questionnaire created specifically for this study. These collected data will be analysed and results will be discussed.
2. Providing results to increase the awareness of the potential of multimodality among language teachers and students and to promote the pedagogical benefits of kinaesthetic teaching and learning.

Gestures and body movements are fundamental to cognitive and communicative functions such as conceptualisation, thought organisation (Goldin-Meadow 2023) and memorization of vocabulary (Tellier 2008; García-Gámez, Cervilla, Casado, and Macizo 2021), language production and comprehension (Sweller, Shinooka-Phelana, and Austin 2020), management of emotions and pragmatic aspects (Morgenstern and Goldin-Meadow [Eds.] 2022). The study on the perception of gestures by foreign language teachers presented and discussed in this paper has proven that the use of gestures and body movements by language teachers corresponds to each of the cognitive and communicative functions mentioned above, as this paper aims to show by analysing the preliminary data from the ongoing empirical study.

2. The state of the art

Gestures and body movements spontaneously play an essential role in the context of language learning, since they are an integral part of the human communication system, as it has been demonstrated in several psycholinguistic studies (McNeill 1992, 2005; Krauss 1998; Kendon 2004; Capirci, Contaldo, Caselli, Volterra 2005; Goldin-Meadow 2023). Children begin to communicate with gestures, especially deictic gestures, and they develop the ability to synchronise gestures and words. Gestures are the first means of communication for children and the means for learning language and, more generally, for cognitive development. Through gestures they begin to organise thoughts and intentions, they joint the attention of adults (Tomasello, Carpenter and Liszkowski 2007) and they begin to communicate thoughts and intentions, they produce and understand thoughts and thus prepare for the development of verbal mo-

dality (Iverson and Goldin-Meadow 2005). Further evidence of the key role of gesture in the cognitive development of thinking and shaping communication is provided by blind children who use gestures from birth even though they have never seen anyone sign (Iverson and Goldin-Meadow 1998, 2001). Signers also use gestures, but the latter are usually confused with signs because signs and gestures consist of similar manual and non-manual components¹ (see Cook 2022, 243).

Adults continue to use gestures throughout their lives and across cultures and languages, even after they have mastered one or more verbal languages and completed their cognitive development. As Cook (2022, 248) claims, “in adult speakers, it is clear that movements of the hand and mouth influence one another during communication” and it has been shown that the production of meaningful gestures simultaneously with speech performance reduces the load on speakers’ working memory and thus provides a cognitive benefit. Hand movements without a meaning that is synchronised with speech do not have the same positive effect (see Cook, Friedman, Duggan, Cui and Popescu 2016). Furthermore, it has been proven that gestures are related to the flow of speech. In fact, a restriction of gestures has a negative effect on lexical access and processing by the working memory, e.g. the increasing of fluency disorders (Rauscher, Krauss, and Chen 1996).

Neuroscientists have shown that the same neurones are involved in mouth movements and grasping actions (Rizzolatti, Camarda, Fogassi, Gentilucci, Luppino and Matelli 1988): Mouth and hand are connected through the brain, i.e. they have a neuronal coordination on the basis of which they can jointly shape communication (Iverson and Fagan 2004). Ferreira (2021, 1461) states that “to comprehensively understand how cognitive processes operate, it is necessary to acknowledge the brain as embodied”. This concept is also argued by embodied cognition theories and means that “how humans collect information and assemble the world depends non-trivially on the body, its experiences, and its movements; the only way that the brain talks to the environment is through the body, sensory tissues, and organs”. Human beings think, speak, and learn with the body as well as the mind or even think, speak, and learn through the influence of the body on the mind and the influence of the mind on the body. Body actions and physical experience influence mental processes, and mental processes leave traces in the body. Body and mind interact with each other as two distinct, but not separate, independent systems (Barsalou 1999, 2008; Gibbs 2005).

¹ Signers are people who use a sign language such as Italian Sign Language. This is one of the various sign languages used around the world and was developed for communication of deaf people and between deaf and hearing people. Each sign of a sign language consists of a combination of phonemes, the so-called formational parameters. There are five of these: Handshape, palm orientation, movement, location, and non-manual signals such as facial expressions and body movements.

3. *The Study*

3.1 Methodology

29 foreign language teachers working at schools or universities in Italy took part in the study. They answered a semi-structured questionnaire with a mixture of open and closed questions with multiple choice answers (see the Appendix). The questionnaire refers to their use of gestures in class and their observation of learners' gestures in class. The questionnaire was distributed in October 2024 in a Google form through the Italian Association of Foreign Language Teachers ANILS (Associazione Nazionale Insegnanti Lingue Straniere). The questions were aimed at:

1. Investigating teachers' perceptions of the frequency of their gestures;
2. Investigating teachers' perceptions of the functions of gestures used in foreign language teaching;
3. Observing teachers' perceptions of the impact of their gestures on teaching and learning;
4. Identifying the composition of gestures and body movements used by foreign language teachers in the classroom;
5. Investigating teachers' perceptions of the use of learners' gestures in the classroom.

The data collected are analysed from both quantitative and qualitative perspectives. The quantitative analysis is carried out by creating charts. The qualitative analysis is done by creating tables according to the aspects to be focussed within the theoretical framework of embodied cognition and total physical response (cf. Macedonia and Knösche 2011; Chen and Fang 2014; Huang, Chao, Fang, and Chen 2013). It promotes a cognitive approach to language teaching that needs to incorporate gestures more and more consciously and develop the use of gestures by language teachers as a professional skill (cf. Stam and Tellier 2022).

3.2 Participants

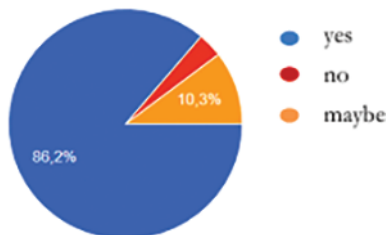
Among the 29 participants, 27 are Italian native speakers, 1 is a Russian native speaker and 1 is bilingual from childhood (Italian and English). 9 of these teachers work in the first grade of secondary school, 3 work in the second grade of secondary school, 2 work at the university, 1 has experience in all teaching levels. 7 teachers have experience of teaching groups of between 10 and 20 students and 17 teachers work with groups of more than 20 students: all of these teachers work in public schools or universities; 4 teachers work in private schools and teach smaller groups; 1 teacher works with groups with a variable number of students at different educational levels. Most of the teachers learnt the language they teach at university, but six of them also learnt the language they teach in the family environment. 14 teachers who participated in the study teach English: 3 of them also teach Spanish, 1 also teaches German; 3 teach

only Spanish; 7 teach Italian as a second language (L2): 2 of them also teach German and 2 also teach Russian; 3 teach only French.

3.3 Collected Data

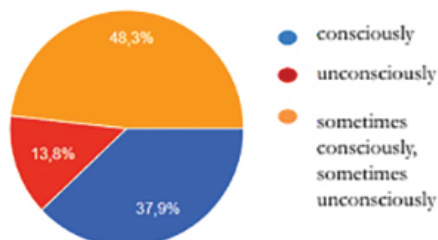
86.2 per cent of the teachers involved in the study stated that they use gestures in the classroom (see Chart 1).

Chart 1 – *Percentage of teachers' use of gestures according to teachers' perceptions*



14 teachers stated that they sometimes use gestures consciously and sometimes unconsciously during their lessons; 11 teachers stated that they only use gestures consciously; 4 teachers stated that they use gestures unconsciously (see Chart 2).

Chart 2 – *Percentage of conscious and unconscious use of gestures by teachers*



Teachers who stated that they always or sometimes consciously use gestures also stated that they use methods such as role play, flipped classroom, cooperative learning, and total physical response.

Teachers indicated that they use gestures in classroom activities such as explaining and illustrating vocabulary, facilitating student responses during interactive and hands-on activities, describing physical and character aspects, illustrating intonation and rhythm to convey the prosody of a language, introducing the activities to be performed, and illustrating cultural and social aspects to make them visible and more immediate for understanding (see Table 1).

Table 1 – *Teaching activities in which teachers use gestures*

<i>Contexts for the use of gestures by teachers</i>
Explanation and illustration of vocabulary
Facilitating students' answers
Description of physical and character aspects
Illustration of intonation and rhythm
Explanation of the activities to be done
Illustration of cultural and social aspects

According to the teachers (see Table 2), the gestures they use in class fulfil functions such as avoiding verbalisation or verbal translation into students' L1, facilitating comprehension, improving memory processing and communication, highlighting topics and the context of communication, involving students in class activities, clarifying content, visualising words, to support teaching and learning more directly, directing teachers' mental activities by organising thinking and lexical access, both of which are fundamental to explanatory work, and also directing students' mental activities by favouring thinking, attention, and memory, promoting the learning of cultural content, highlighting cultural differences in the way of thinking, living and acting.

Table 2 – *Functions of gestures in the foreign language classroom according to teachers' experience*

<i>Functions of teachers' gestures</i>
Avoiding verbalisation and verbal translation in the L1 of students
Facilitating comprehension
Improving memory
Increasing communication
Emphasising topics and contexts
Involving students
Clarifying content
Giving visual support for words
Guiding the mental activities of teachers and students
Favour the learning of culture

The teachers involved in the study were asked to indicate gestures that they frequently use in class. They mentioned different types of gestures for different expressive functions. The examples mentioned by the teachers are collected and summarised in Table 3: The different types of gestures are in the first column and the corresponding expressive functions in the second column.

Table 3 – *Types of gestures used by teachers for different expressive functions*

<i>Types of gestures</i>	<i>Expressive functions</i>
Unconscious gestures	To accompany the speech
Facial mimicry	To express feelings and emotions
Action or position gestures	1. To introduce teaching activities (writing, speaking, reading, make silence*, listening**, repeat***, pay attention to the novelty****) *The gesture with folded arms **The hand touches the ear ***The index finger in horizontal position rotates on itself forward near the mouth **** The gesture of the bell/the gesture of the light bulb (see figures 1 and 2) 2. To mimic verbs such as sleeping, running, etc. 3. To mimic jobs 4. Movements up or down for explaining prepositions 5. To mimic situations 6. Movements of the hand at different levels of position to explain the degree of strength of adjectives 7. Movement of separation to distinguish concepts
Deictic gestures	1.To show dimensions and collocations 2.To indicate the position of the parts of a sentence by pointing to air 3.To attract the attention 4.To assign word shifts 5.To show the past (behind), the present (in front), the future (ahead) for explaining the tenses of verbs 6.To indicate and connect elements 7.Pointing the head to express thought or imagination

Fig. 1 – *The gesture of the bell*

Fig. 2 – *The gesture of the light bulb*



More than half the majority of teachers stated that students use gestures in class. 31 per cent of teachers indicated that they do not know whether students use gestures in class, probably because they have never paid attention to this aspect (see Chart 3). According to the teachers, gestures are not used as often by the students as by the teachers (see Chart 4).

Chart 3 – *Percentages of use of gestures by learners according to the teachers*

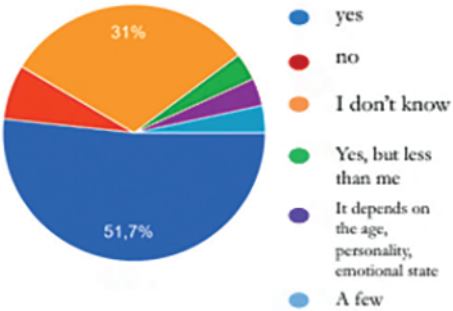
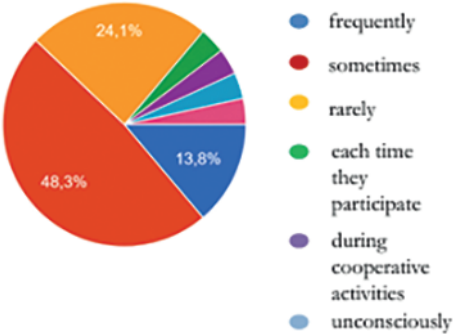


Chart 4 – *Percentages of the frequency of gestures' use by students according to the teachers' perception*



The teachers were very uncertain in answering the question about the type of gestures used by the students. Those who responded referred to imitation of the teacher's gestures, facial expressions, iconic gestures to describe physical features, gestures for asking to speak. Most teachers were also undecided when asked about the situ-

ations in which learners use gestures and the functions of students' gestures, again answering "I don't know". The teachers who gave an answer referred to learners' use of gestures in situation such as those characterised by the lack of words in the target language, the necessity to clarify, during the production in the target language and in pair activities. Regarding the functions of students' gestures, teachers responded that students use gestures to replace words, to be clearer and more comprehensible, to compensate for vocabulary limitations in the target language, and to reinforce the learning of a grammatical or lexical structure.

3.4 Data analysis

The percentage of teachers who stated that they use gestures in the classroom is high (86,2 %).

It has been established that the sample of teachers who responded to the questionnaire work in different orders and levels of education. However, it is a sample that is not meaningful enough for the different orders and levels to be able to assess differences in the frequency of use of gestures by teachers in relation to the educational level of the students. This aspect should be investigated in studies conducted later with a larger and more diverse sample of teachers of foreign languages at different levels of education.

With one exception, all the teachers involved in the study have Italian as their mother tongue. In fact, only one has Russian as a mother tongue. In order to understand whether the frequency of use of gestures in class by foreign language teachers and their perception of such use can be correlated with the teachers' L1, which, as in the case of this study, is a language with a high frequency of use of gestures, it is necessary to deepen the research with comparative studies involving foreign language teachers with an L1 other than Italian. It would also be interesting to examine in a future study the possible differences in the frequency of use of gestures by teachers in relation to the language taught, checking, for example, the differences related to the distance or proximity between the teacher's mother tongue and the language taught and between the students' mother tongue and the language taught by the teacher.

The participants in the study showed that they correctly recognised the key role that their gestures play in foreign language teaching. Most of them were aware of both the cognitive and the pragmatic-communicative functions of gestures. Nevertheless, the examples they gave are certainly fewer than those actually used in class, just as their perception of the frequency of gestures' use is certainly low, since many gestures fulfil cognitive and pragmatic functions without the teacher being aware of them (cf. Cook 2022). Therefore, it is necessary to conduct more studies based on the integration of natural and experimental approaches, i.e. the integration of observational studies on the spontaneous use of gestures in different contexts of language teaching and learning with experimental studies aimed at demonstrating the specific use of gestures for the achievement of language teaching and learning goals. An extension of these studies could enhance the conscious use of gestures in

foreign language teaching to improve the interaction of bodily actions and mental processing, thus basing learning processes even more strongly on the embodiment of cognition.

The examples of gestures listed in Table 3 are different types of gestures (co-speech gestures, iconic gestures, mimes, metaphoric gestures) that were used as pedagogical gestures that can be categorised into non-intentional and intentional gestures. Gestures that accompany speech without having a lexical meaning and facial expressions that express feelings and emotions are non-intentional gestures. Moreover, these types of gestures are mostly unconscious and have pragmatic functions, such as establishing an emphatic relationship between teacher and students, providing information about the quantitative and qualitative attention that a task requires, involving students in clarifying the content and in changing the goals and cognitive engagement in the different activities. They help to manage students' motivation and emotions. Gestures classified as action or positional gestures, iconic gestures used for representing physical characteristics, and the different types of deictic gestures have a lexical meaning and are more intentional and conscious than the others listed in the table 3. They can be co-speech gesture, but they can be also used before speaking in the target language to prepare the teachers' explanations and the students' comprehension, or after speaking to reinforce the understanding and memorization of the content conveyed by words. Most of them have a metaphorical conceptual basis. The latter refers to embodied experiences or ideas in gestures. Teachers mentioned gestures used to introduce classroom activities and explain content. In class, activities such as writing, speaking or reading are mimed. Then, the commandment of silence can be formulated indirectly: In this context, one teacher mentions the metaphorical use of the gesture of folded arms, representing the teacher's interruption of the lesson, to indirectly ask learners to restore their attention and stop making noise. The gesture of the hand touching the ear invites the students to listen to the lesson. The index finger spinning around itself near the mouth conceptualises the action of repetition in visual space and asks learners to perform this action in the classroom. The bell gesture is a metaphorical gesture used by teachers to draw learners' attention to the task and convey the need to focus attention on the content by simulating the motion of shaking a bell. The light bulb gesture symbolises the emergence of new content that needs to be grasped and understood. Mime is used to represent verbs or vocabulary (e.g. jobs) or grammar content (e.g. prepositions) to be taught. Teachers' gestures also metaphorizes space, as in the cases of the positional gesture for the degree of strength of adjectives and the gesture of separation. The first represents the lexical and grammatical degree of strength of adjectives by iconically tracing in the shared visual space the image of a degree scale on which the content to be learnt is organised. The second establishes a conceptual order by using the visual space to organise the content to be differentiated by the learners. All these gestures and body movements are examples of the embodiment of cognitive actions and experiences, even with objects of the real world, which take on a metaphorical meaning in order to fulfil pedagogical functions.

The deictic gestures listed in Table 3, which were given as examples by the teachers involved in the study, function as pedagogical gestures by fulfilling both the so-called primary and secondary function of pointing (cf. Cooperrider and Mesh 2022). Deictic gestures are used to indicate properties of objects of real words such as dimension and collocation, to attract attention, to assign word shifts by pointing to students and they play the primary functions of pointing by directing the listeners' gaze and conveying information such as collocation and physical features. Deictic gestures such as those used to indicate and connect abstract elements, to refer to the syntactic features by pointing to the parts of a sentence in the air, and the deictic gestures for past, present and future used to metaphorically represent the tenses of verbs in space are deictic gestures that play the secondary functions of gestures. They provide a visually concrete mapping to abstract concepts.

The deliberate use of gestures fits better with the total physical response approach and with interactive and cooperative language teaching methods in which body movements and reading movements play a central role. The teachers involved in the study have shown that they are aware of their use of both unconscious and conscious gestures. Nevertheless, the cognitive and communicative functions of both unconscious and conscious gestures in the context of language teaching need to be investigated in depth through observational studies under more natural conditions, and not only in the laboratory under artificial conditions, as has been investigated in most of the available studies.

The data collected in this study show that teachers do not pay much attention to students' use of gestures. Teachers observe limited use of gestures by students when they do not know or cannot remember vocabulary in the target language. This could mean that teachers do not focus on students' use of gestures during lessons and therefore have not developed awareness of this use.

3.5 Discussion

The teachers' description of the functions of gestures shows that gestures make a cognitive contribution to teaching. Teachers are also aware of this contribution as they believe that gestures facilitate understanding, improve memory, support attention and organise a visual representation of thoughts. What they perceive about the cognitive functions of gestures in the classroom is a confirmation of what has been claimed in several psycholinguistic studies (McNeill 1992, 2005; Krauss 1998; Kendon 2004; Capirci, Contaldo, Caselli, Volterra 2005; Goldin-Meadow 2023). According to McNeill's Growth Point Theory (1992), gestures organise thinking in coordination with language in the so-called Growth Point, in that both gestures and language express the acts of thinking: gestures embody the thinking that is verbalised in language. Gestures organise and shape thought in a way that is based on perceptual and motor processes, according to embodied theories (Barsalou 1999, 2008), and in this sense they support cognition in a more direct way.

Studies have investigated the performance of speakers who gesticulate spontaneously during their speech in memory tasks (Wagner, Nusbaum, and Goldin-

Meadow 2004). It was found that these speakers perform better than speakers who do not gesticulate: They benefit from the lightening of cognitive load and the enhancement of cognitive resources using gestures synchronised with words (Goldin-Meadow and Wagner 2005). Cook (2022, 250) notes that “speakers of all ages may be able to reduce their own demand on working memory by gesturing, by indexing referents, by spatializing ideas, and by reactivating relevant information”. Teachers’ perceptions of the functions of gestures, such as facilitating comprehension, improving memory and clarifying content, can be related to the findings of these studies on the benefits of using gestures for input processing by working memory. Gestures provide working memory with a dual visual process that reduces the cognitive load on the cognitive system.

Gestures have been related to the imagistic thinking as well as to visual perceptual and motor aspects (Krauss 1998; Krauss and Hadar 1999; Cienki 2005), embodying motor and visual content, so using the special working memory for optimising the processing by memory (Morsella and Krauss 2004) and helping the long-term achievement and the retrieval of lexical items (see Macedonia and Knösche 2011; Macedonia 2013; Rowe, Silverman and Mullan, 2013; Macedonia and Klimesch 2014). Gestures can also facilitate phonological articulation and prosody performance by shaping intonation patterns in space (falling, rising, etc.) (Esteve-Gibert and Prieto 2013). As shown in the study presented here on teachers’ perceptions of the functions of gestures in the foreign language classroom, it is possible to avoid verbalisation and verbal translation in students’ L1 by encouraging students to find and memorise words in the target language. Gestures provide visual support for word production and comprehension, as the teachers involved in the study emphasised.

The use of gestures in terms of frequency and degree of conventionality is influenced by cultural differences (cf. Kita 2009). Conventional gestures, the so-called symbolic gestures, can be culturally specific and must therefore be taught. Teaching gestures in the foreign language classroom can convey a cultural value that promotes the development of intercultural competence (cf. De Iaco 2020). But the unconscious use of symbolic gestures that take on pedagogical functions can compromise the success of the lesson. Therefore, teachers need to consider these aspects, become aware of the cultural specificity of some gestures and programme which symbolic gestures can also have pedagogical functions that are beneficial for students’ learning, and which symbolic gestures need to be learned and cannot be used for teaching content. In this context, it is necessary to consider the metaphorical gestures with a high degree of conventionality, such as the metaphorical gestures used synchronously with the teaching of verb forms to conceptualise time in space: the past behind the speaker, the present close in front of the speaker and the future in front of the speaker. This conceptualisation of time with the metaphorical spatial collocation of the different tenses is widespread in different cultures, but it is not universal and can lead to misunderstandings in a multilingual and multicultural class. In Aymara culture, for example, the future is conceptualised behind the speakers and

the past in front of them, because we know and we can “see” the past, so it remains in front of our eyes, but we do not know the future, so we cannot “see” it (see Núñez and Sweetser 2006; De Iaco 2022). So if, on the one hand, teachers’ gestures can have a positive cognitive effect on students’ language acquisition and symbolic gestures characterised by a cultural value can be consciously used by teachers to convey the target culture, on the other hand, it must be taken into account that “in some cases, certain gestures can lead to misunderstandings because they are ambiguous, too symbolic or culturally embedded” (Stam and Tellier 2022).

Many other studies (Stam and McCafferty 2008; Swellera, Shinooka-Phelana, and Austin 2020; Stam and Tellier 2022) have shown that foreign language learners use gestures in class and that the gestures they use have relevant cognitive and pragmatic functions. The latter are related to the organisation of thinking, facilitation of speaking, clarification of language, synchronisation and interaction with the teacher and other students, memory processes and adaptation to the environment. In addition, learners’ gestures in the foreign language classroom provide information about their affective and emotional state, their interlingual system and their level of comprehension of the oral or written material taught in class (see Gullberg and McCafferty 2008; Stam 2008; Stam and McCafferty 2008; Stam and Buescher 2018; Mirzaei 2016; Tellier 2014; Stam and Tellier 2022). Therefore, the perception of gestures of foreign language students by the teachers who participated in the study presented here is not realistic because they perceive selectively their use of gestures during teaching, but they do not use to concentrate their attention on the use of gesture by students. It is necessary to conduct a complementary and comparative study of students’ perceptions of the use of gestures in foreign language teaching. In general, it is necessary to extend the study of the use of gestures in foreign language teaching by both teachers and students, to deepen the knowledge of the functions that these gestures fulfil and to propose the acquisition of the pedagogical use of gestures by language teachers in the training programmes dedicated to them. In this context, Stam and Tellier (2022) have proposed, for example, the inclusion in teacher training programmes of workshops and training modules specifically dedicated to the pedagogical use of gestures.

4. Conclusion

The preliminary study on the perception of gestures by foreign language teachers presented in this paper has substantiated the argument of the key role of multimodal language in foreign language teaching. Indeed, based on the analysis of data collected as part of a study on foreign language teachers’ perception of gestures, it was argued that gestures used by foreign language teachers in the classroom are fundamental to cognitive and communicative functions such as conceptualisation, thought organisation, language production and comprehension, development and management of emotions and pragmatic aspects.

The study showed that a high percentage of the teachers surveyed are aware of the use of gestures in foreign language teaching and that they are aware of the functions of the gestures used in class. However, since most gestures are used spontaneously and unconsciously, it is necessary to link the data collected in this study with further new studies, such as various observational studies in the context of foreign language teaching and learning, in order to better understand the role of gestures, to further deepen the pedagogical power of gestures and to plan training for teachers focussed on developing a conscious awareness of the cognitive and pragmatic functions of gestures used in the classroom.

The types of gestures used by the teachers involved in the study show that the body and mind interact in activities such as teaching by producing gestures as a form of embodied cognition with a pedagogical potential. They confirm that gestures and body movements are fundamental to cognitive and communicative functions such as conceptualisation, thought organisation, language production and comprehension, emotion development and management, and pragmatic aspects. The results of this study show that the gestures and body movements used by teachers in the foreign language classroom fulfil each of the above-mentioned cognitive and communicative functions. They make it possible to promote comprehension, memory and attention, avoid verbalisation and translation into learners' first language, support students' participation in class, convey cultural aspects and manage discomfort and anxiety. This suggests that a more conscious integration of gestures in the classroom can have a positive impact on language learning.

The study shows that the teachers who answered the questionnaire are not aware of the use of gestures by their students. It is likely that integrative and complementary studies focussing on language learners' use of gestures in class will prove that learners' gestures have many cognitive and pragmatic functions, as the studies cited in the previous paragraph have shown. In order to promote the spread of students' strategic use of gestures in class to improve their learning, it is necessary to programmatically educate foreign language teachers about the benefits of observing students' spontaneous use of gestures to obtain information about the tendency of students' learning habits and their emotional state, and to promote students' conscious use of gestures in class towards the achievement of learning goals.

Appendix

The semi-structured questionnaire with a mixture of open and closed questions with multiple-choice answers, which was answered by the foreign language teachers involved in the study:

1. What is your first language (L1)? (closed question with multiple choice answers)
2. If your L1 is not Italian, what is it? (open-ended question)
3. What foreign language do you teach? You may indicate more than one language (open-ended question)

4. How many students do you normally teach in your classes? (closed question with multiple choice answers)
5. At which level of education do you teach? (closed question with multiple choice answers)
6. Where do you learn the language you teach? (closed question with multiple choice answers)
7. What type of teaching method do you use in your lessons? (open-ended question)
8. What type of teaching techniques do you use in your lessons? (open-ended question)
9. Do you use gesture during your teaching? (closed question with multiple choice answers)
10. If yes, do you use gestures unconsciously or consciously? (closed question with multiple choice answers)
11. If yes, in which teaching activities do you use gestures? (open-ended question)
12. In your opinion, what functions do your gestures fulfil? (open-ended question)
13. Can you describe some of the gestures you use in class? (open-ended question)
14. Can you describe gestures that you use in certain situations? (open-ended question)
15. Did you notice the use of gestures by students in class? (closed question with multiple choice answers)
16. If yes, how often? (closed question with multiple choice answers)
17. If yes, what kind of gestures by students you observed? (open-ended question)
18. In which situations do students' gestures in class? (open-ended question)
19. In your opinion, what functions do gestures play? (open-ended question)

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