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The subtle power of nonverbal communication in English as a foreign language classrooms: An observational study on teachers' gestures and students' comprehension

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Abstract

Nonverbal communication, particularly teachers' gestures, is important in improving students' comprehension of teacher-delivered verbal instructional content, engagement, and participation in English as a foreign language (EFL) classrooms. This observational study investigated the impact of teachers' gestures on students' observed understanding of instructional content communicated orally, rather than comprehension of classroom routines or reading-based tasks, in Saudi EFL classrooms. The study employed a purposive sample of 12 university EFL teachers, each observed in their usual classrooms, with students' responses, such as comprehension, engagement, and participation, recorded during instruction. Classroom interactions were systematically observed, and the frequency and effectiveness of various gesture types (deictic, iconic, metaphoric, and beat) were recorded across different instructional contexts (introduction, explanation, practice, and review). Students' responses, including inferred comprehension based on behavioural cues, engagement, and participation, were also documented. Descriptive and inferential statistics revealed that deictic and iconic gestures were most frequently used, while metaphoric gestures were least common. Gestures were employed more often during the explanation and practice phases compared with the introduction and review. Correlation analysis showed strong positive relationships between deictic and beat gestures, and moderate correlations between iconic and metaphoric gestures. Deictic gestures exhibited the strongest association with behaviourally inferred comprehension, iconic gestures with engagement, and metaphoric gestures with comprehension and participation. The frequency of gestures positively correlated with students' comprehension and engagement. The findings suggest that incorporating gestures, particularly of the

deictic and iconic types, during explanation and practice can enhance students' learning outcomes. This study confirms the importance of nonverbal communication in EFL classrooms and provides insights for optimising teaching strategies.
Keywords: EFL classroom, gesture type, instructional context, nonverbal communication, students' comprehension, student engagement, teachers' gestures

Introduction

In English as a foreign language (EFL) classrooms, effective communication extends beyond verbal interaction. Nonverbal communication, particularly teachers' gestures, enhances comprehension, engagement, and participation (Afdaliah, 2022; Gholamrezaee & Ghanizadeh, 2018). Gestures provide a visual scaffold, reinforce spoken language, and facilitate the learners' understanding of complex concepts (Ananda et al., 2020; Macedonia, 2014). For students with limited language proficiency, nonverbal cues offer an additional layer of meaning, rendering instruction more comprehensible and accessible (Macedonia, 2014). Research has demonstrated that gestures facilitate cognitive processing and promote learning, particularly language learning (Oppici et al., 2023). However, although the significance of gestures has been acknowledged, there remains a need for more extensive investigation into the specific types of gestures employed by instructors and their impact on student outcomes.

Previous studies have demonstrated the role of teachers' gestures in improving vocabulary acquisition, comprehension, and classroom interactions (Gholamrezaee & Ghanizadeh, 2018). Notwithstanding this evidence, insufficient attention has been devoted to exploring how different types of gestures – deictic (pointing), iconic (depicting objects or actions), metaphoric (illustrating abstract ideas), and beat (showing the rhythm and structure of speech) – influence EFL learners' engagement and comprehension. Elucidating the distinct contributions of these gesture types can provide valuable insights into multimodal teaching strategies that enhance students' learning (Gao, 2021).

Furthermore, the instructional context in which the gestures are used is essential. Teachers may employ gestures in varying ways, contingent on the instruction phase, such as during explanatory sessions, practice exercises, or review periods (Xie & Derakhshan, 2021). Nevertheless, the frequency and efficacy of using gestures across diverse instructional contexts remains insufficiently investigated. A systematic analysis of gesture usage throughout different teaching phases has the potential to yield a more comprehensive understanding of their roles in facilitating language learning (Cai, 2022). Furthermore, while the frequency of using gestures has been investigated, the correlation between gesture employment and its impact on student outcomes such as comprehension, participation, and engagement has not been sufficiently examined. This study addresses this gap by analysing the frequency of using gestures and its efficacy in promoting learning outcomes, thereby contributing to the broader corpus of literature on nonverbal communication in education. The following questions were suggested to achieve the main objectives of this study.

1. Which types of gestures (deictic, iconic, metaphoric, or beat) are most frequently used by teachers in EFL classrooms?
2. In what instructional contexts (introduction, explanation, practice, and review) are teachers' gestures most commonly used in EFL classrooms?

3. To what extent are the different types of teachers' gestures (deictic, iconic, metaphoric, and beat) correlated in EFL classrooms?
4. What is the correlation between the frequency and effectiveness of teachers' gestures and students' comprehension and participation in EFL classrooms?
5. To what extent are the different types of teachers' gestures related to students' comprehension, engagement, and participation in EFL classrooms?

Literature Review

Nonverbal Communication in EFL Classrooms

In educational contexts, particularly those where language proficiency is still developing, such as EFL classrooms, nonverbal communication plays a crucial role (Cui, 2022; Goundar, 2023; Lazaraton, 2004). This mode of communication, which encompasses body language, facial expressions, and physical posture, provides an additional channel for conveying meaning in addition to verbal communication (Gao, 2021). For EFL students confronting various language-learning challenges, gestures have emerged as a significant instructional tool that complements verbal teaching methods (Gorham, 1988). These nonverbal cues bridge spoken language and comprehension, enhancing the learning experience by providing supplementary layers of meaning (Clough & Duff, 2020; Macedonia, 2014; Matsumoto & Dobs, 2017).

Gestures, in particular, have garnered substantial scholarly attention owing to their cognitive and pedagogical benefits. They enable teachers to represent abstract concepts visually, provide immediate elucidation without reliance on further verbal explanations, facilitate associative learning, and enhance memory retention (Macedonia, 2014; Zvaigzne et al., 2019). Within this framework, gestures function as embodied cognitions, whereby physical actions are intrinsically linked to cognitive processes. This embodiment of meaning is particularly advantageous in EFL classrooms, where learners must simultaneously process new linguistic inputs and derive their comprehension. Alignment of verbal and nonverbal communication has been demonstrated to reduce cognitive load, offering learners enhanced clarity and facilitating a more profound level of engagement with instructional content (Frey & Lüke, 2023; Oppici et al., 2023; Özer & Göksun, 2020).

Beyond cognitive facilitation, gestures create an inclusive and supportive educational environment. Through visual reinforcement, they mitigate the linguistic barriers many EFL learners encounter, enabling students with varying proficiency levels to engage more effectively with instructional materials (Gholamrezaee & Ghanizadeh, 2018; Montiegel, 2022). Strategic integration of gestures into teaching enhances comprehension. It also facilitates the design of multimodal learning experiences, wherein visual, auditory, and kinesthetic cues are cohesively utilised to optimise the learning process. In this context, nonverbal communication is not merely a supplementary teaching tool but an essential element of effective EFL instruction, particularly in environments where the learners rely heavily on visual cues to compensate for their limited linguistic proficiency (Cai, 2022; Liu, 2021; Roth & Lawless, 2002).

Teachers' Gestures in EFL Classrooms

In EFL classrooms, nonverbal communication, particularly teachers' gestures, is central to enhancing instructional efficacy (Folven et al., 1984; Sun, 2021). These physical movements, ranging from simple pointing to complex bodily expressions, complement verbal communication by offering visual support, thus elucidating and underscoring the salient ideas. Gestures provide students with concrete visual representations of abstract or unfamiliar linguistic concepts, boost verbal explanations, and enhance their comprehension (Matsumoto & Dobs, 2017).

Furthermore, gestures foster a more dynamic and interactive classroom atmosphere by promoting student involvement and mitigating communication obstacles (Blake et al., 2008; Montiegel, 2022). In settings where students encounter language-related challenges, gestures function as vital aids in bridging comprehension gaps by providing tangible, nonverbal signals that reinforce and augment spoken language (Choi et al., 2021; Macedonia et al., 2011; Sherman & Nicoladis, 2005). Numerous studies have demonstrated that gestures improve understanding, promote higher levels of student engagement, and facilitate retention of newly acquired information (Frey & Lüke, 2023; Roth & Lawless, 2002). Incorporating gestures into pedagogical strategies creates a complex learning experience, rendering the educational process more interactive and accessible to students (Lazaraton, 2004; Riani & Sari, 2020; Roth, 2001).

In EFL instruction, gestures serve a function that extends beyond mere supplementary aids, constituting essential components of effective pedagogy (Sun, 2021). Various categories of gestures fulfil distinct roles, enhancing students' cognitive processes and comprehensive understanding. The most extensively researched gestural types include deictic, iconic, metaphoric, and beat gestures, each contributing uniquely to the educational environment (Ramos-Cabo et al., 2022).

Deictic gestures, which are commonly called pointing gestures, physically indicate specific objects, locations, or individuals. These gestures effectively direct students' attention to critical items or areas in the instructional materials or classroom environments (Matsumoto & Dobs, 2017; Vilà-Giménez et al., 2019). In EFL settings, where the learners may experience difficulties with vocabulary and instructional clarity, deictic gestures function as visual anchors for verbal explanations, enhancing comprehension by providing direct reference (Blake et al., 2008; Özçalışkan et al., 2016).

Iconic gestures, which visually depict the form or action of an object or concept being discussed, are closely aligned with spoken content. These gestures enable students to visualise what is being described. For instance, an instructor may illustrate a circular object by tracing a circle in the air with their hands. Iconic gestures bridge the gap between abstract language and tangible understanding, enabling students to grasp complex concepts and new vocabulary more effectively (Macedonia et al., 2011; Sherman & Nicoladis, 2005).

Metaphoric gestures represent abstract ideas through physical movements. Unlike iconic gestures that depict concrete objects, metaphoric gestures symbolise intangible concepts, such as time, emotions, or processes (Janes & Chen, 2024; Roth & Lawless, 2002). For instance, an instructor may move their hand forward to signify the passage of time. In EFL classrooms, metaphoric gestures assist learners in conceptualising abstract ideas by providing visual metaphors that complement verbal explanations, thereby enhancing their cognitive understanding (Riani & Sari, 2020).

Beat gestures primarily confirm the rhythm and structure of speech during classroom interactions, indirectly supporting the management of students' behaviour and engagement. These gestures, although simple and abstract, are frequently utilised to mark transitions, show key points, and maintain student attention (Pi et al., 2021). For instance, an instructor might rhythmically raise their hand or tap their fingers in synchronisation with their speech to stress the significance of a particular idea, or use subtle hand movements to signal a change in speaking turns. Beat gestures facilitate the organisation of classroom communication by providing nonverbal cues that enable students to follow the flow of the lesson and identify moments of emphasis, guiding their responses, and participation (Vilà-Giménez et al., 2019). These gestures contribute to a structured and dynamic learning environment, reinforcing verbal communication and ensuring engagement without direct verbal commands (Davis & Vincent, 2019; Wakefield et al., 2018).

Each gesture type enhances the learning experience by reinforcing the verbal instruction. Teachers can provide students with additional cognitive support that facilitates the processing, comprehension, and retention of new information through their utilisation (Frey & Lüke, 2023). By employing the multimodal nature of communication and effectively combining speech with gestures, EFL classroom instructors can create a more comprehensive and dynamic learning environment that better supports learners at varying levels of language proficiency (Wakefield et al., 2018). To complement the definitions above, Figure 1 offers a visual representation of the four main types of teachers' gestures (deictic, iconic, metaphoric, and beat), intended as illustrative approximations to support the descriptions in this section.

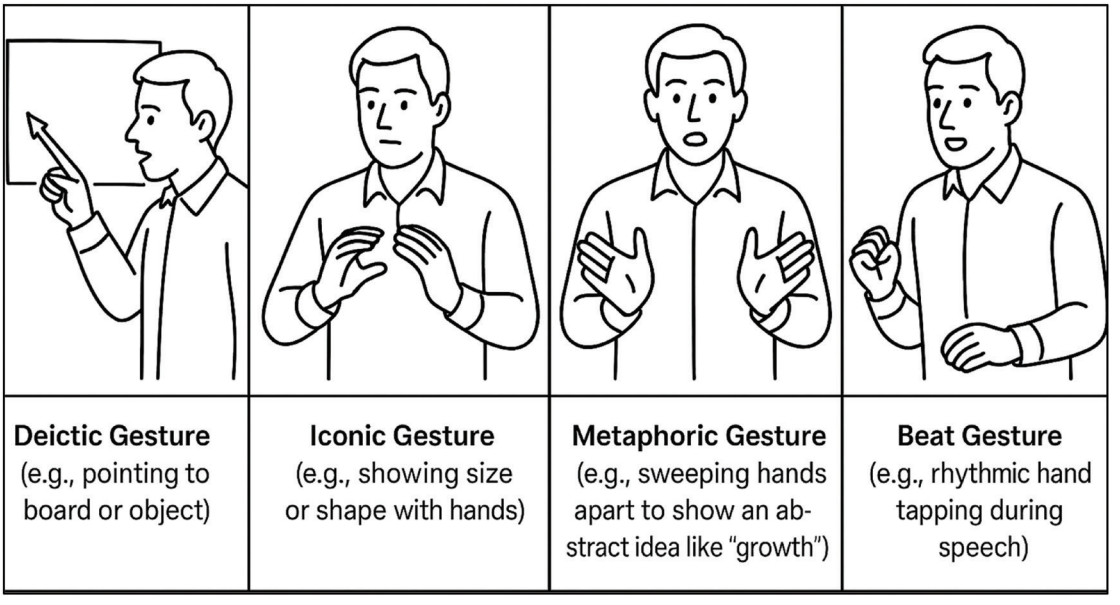

Figure 1. Illustrative representations of the four main types of teachers' gestures in EFL classrooms

Impact of Gestures on Students' Comprehension

As mentioned earlier, gestures are essential for enhancing students' comprehension, particularly in EFL classrooms, where the learners' linguistic proficiency is often developing. Gestures enhance learning by providing visual cues that complement verbal instruction, thereby offering students an additional modality for processing and assimilating new information. These nonverbal signals function as cognitive scaffolds, facilitating the connection between unfamiliar languages and existing knowledge, thereby augmenting comprehension (Macedonia, 2014; Özer & Göksun, 2020; Valenzeno et al., 2003). Teachers can effectively utilise gestures to elucidate abstract or complex concepts, rendering educational content more accessible and comprehensible, particularly for students with limited language proficiency (Kang & Wu, 2022; Oppici et al., 2023; Sueyoshi & Hardison, 2005; Vilà-Giménez & Prieto, 2021).

From a cognitive perspective, gestures significantly reduce the cognitive load required to process verbal information. Research has demonstrated that gestures distribute cognitive demands across verbal and nonverbal channels, enabling learners to concentrate more effectively on language acquisition (Özer & Göksun, 2020; Sistyawan et al., 2022). This dual coding of information through both speech and gestures engages learners at multiple cognitive

levels, leading to more efficient processing and retention of vocabulary and complex concepts (Gao, 2021; Kaschak et al., 2017; Wang, 2021). Gestures have been shown to reduce cognitive load, particularly among learners with language difficulties, as they distribute cognitive processing across verbal and nonverbal channels (Dargue et al., 2019; Manwaring et al., 2017). Specifically, gestures facilitate the formation of solid mental associations between words and their meanings, thereby greatly enhancing memory retention and recall. This is especially crucial in EFL contexts, where students are often required to acquire large amounts of new linguistic information within a relatively short timeframe (Ibanez et al., 2010; Macedonia, 2014).

Empirical studies have consistently demonstrated that students exposed to verbal and gestural cues achieve superior comprehension outcomes compared with those who receive verbal instruction alone (Gholamrezaee & Ghanizadeh, 2018; Guo et al., 2022; Witt et al., 2004). Gestures provide learners with concrete, visible representations of abstract or unfamiliar language, reinforce verbal explanations, and improve their overall understanding (Cai, 2022; Han, 2021). The alignment between verbal and nonverbal communication fosters deeper engagement, as learners can better link spoken language to its conceptual meaning (Valenzeno et al., 2003; Xie & Derakhshan, 2021). Furthermore, students tend to exhibit increased participation and engagement when gestures are incorporated into instruction, as the multimodal delivery of information creates a richer and more interactive learning environment (Gholamrezaee & Ghanizadeh, 2018; Wang & Ye, 2021). Incorporating gestures helps teachers enhance comprehension and foster stronger teacher–student rapport, positively impacting students' motivation and engagement (Meng, 2021; Sueyoshi & Hardison, 2005).

Contextual Use of Gestures in Teaching

The use of gestures in pedagogical contexts is deliberately adapted to align with various instructional phases, thereby enhancing the efficacy of each stage in the learning process. In EFL classrooms, gestures are strategically deployed to support introducing new materials, elucidate complex concepts during explanations, manage classroom activities during practice, and reinforce knowledge during reviews (Denizci & Azaoui, 2020). These nonverbal cues complement verbal communication and aid students in processing and internalising the content. In the introduction phase, gestures are frequently used to capture students' attention and make unfamiliar concepts more accessible (Gholamrezaee & Ghanizadeh, 2018). Teachers often use deictic gestures, such as pointing to direct attention to visual aids or key elements within the instructional environment (Liu et al., 2020). This phase typically involves the presentation of new vocabulary or ideas, and benefits from gestures that visually connect spoken language to concrete objects or locations, thereby assisting students in forming the initial comprehension of unfamiliar materials. For instance, when introducing new terminology, an instructor may indicate a related object or image, providing a visual anchor that enhances verbal explanations (Urrohimah & Maharsi, 2022; Vilà-Giménez & Prieto, 2021).

In the explanation phase, in which abstract concepts are elaborated, teachers frequently employ iconic and metaphoric gestures to illuminate the relationships between ideas and offer visual representations of abstract concepts (Macedonia, 2014). Iconic gestures, which physically represent actions or shapes, allow students to visualise the relationship between language and meaning, particularly when difficult vocabulary or complex grammatical structures are explored (Nathan et al., 2020; Özer & Göksun, 2020; Wang & Ye, 2021). In contrast, metaphoric gestures indicate abstract ideas through physical movement. For example, an instructor may use a forward hand motion to indicate the passage of time when explaining the future tense, providing a visual metaphor that facilitates the comprehension of abstract concepts (Cai, 2022; Xie & Derakhshan, 2021).

In practice sessions, nonverbal cues, such as beat gestures, are critical in showing the salient aspects of verbal instructions and maintaining interactional continuity. Typically, these simple and repetitive movements reinforce essential information and sustain student attention. An illustrative example of this phenomenon is an instructor employing a rhythmic hand motion to accentuate a crucial element of the instructions, synchronising the gesture with their verbal articulation to enhance comprehension (Gholamrezaee & Ghanizadeh, 2018; Han, 2021; Montiegel, 2022). Teachers often use gestures, such as hand-raising, to signal participation, providing nonverbal cues that guide interaction in the classroom (Nurchintyawati, 2023). Beat gestures create a structured, organised environment that promotes active participation by stressing the rhythm and key points during instruction. Simultaneously, teachers often continue to use deictic and iconic gestures during practice activities to clarify instructions or offer feedback, supporting students as they apply newly acquired knowledge to exercises (Oppici et al., 2023; Urrohimah & Maharsi, 2022; Witt et al., 2004).

During the review phase, gestures recurrently reinforce previously acquired materials, facilitating memory recall and comprehension. Teachers commonly reiterate iconic and deictic gestures utilised in earlier stages, reinforcing key points and enhancing information retention (Macedonia, 2014; Özer & Göksun, 2020). Revisiting these gestures provides the learners with additional visual cues, assisting them in recalling the complex or abstract content covered in previous lessons. Gestures in this phase function as memory triggers, enabling students to retrieve information more effectively (Vilà-Giménez & Prieto, 2021; Wang & Ye, 2021).

Language gestures generally enhance communication, comprehension, and engagement across all instructional phases, including introduction, explanation, practice, and review. Gestures facilitate the creation of a multisensory learning environment that enhances the students' capacity to comprehend, implement, and retain new language skills by rendering abstract or complex content more tangible and assisting classroom management (Gao, 2021; Qin, 2022; Xie & Derakhshan, 2021).

Previous Dtudies

Researchers have investigated the significance of gestures in EFL classrooms for several decades. Studies have demonstrated their efficacy in enhancing students' comprehension, engagement, and classroom management. These nonverbal cues include iconic, metaphoric, deictic, and beat gestures, which are essential components of multimodal communication. Through the integration of verbal and nonverbal elements, gestures contribute to a dynamic and effective learning environment. Ananda et al. (2020) investigated nonverbal communication in EFL teaching, including gestures, facial expressions, and proxemics. Their research found that 89.6% of the students responded positively to these nonverbal cues, reaffirming the role of body language in motivating students. This foundational study established the importance of nonverbal communication in creating a more engaging learning environment. Sato (2020) conducted research that explicitly focused on how gestures are utilised to manage classroom activities, particularly for young learners. Sato identified four core functions of gestures: building relationships, accentuating instructions, encouraging student participation, and mitigating disruptive behaviours.

Yunita et al. (2022) expanded on this concept by exploring gestures through a multimodal perspective, examining their role in managing classroom activities. Their findings demonstrated that gestures were crucial in fostering student involvement and reinforcing instruction, particularly in younger learners. This aligns with the earlier work of Sato (2020), further revealing that gestures are essential for creating an interactive and engaging learning environment. Moreover, Afdaliah (2022) explored how gestures, particularly in bilingual EFL classrooms,

supported lexical retrieval and provided comprehensible input. The study categorised gestures into iconic, metaphoric, deictic, and beat types, demonstrating their functional utility in helping students understand complex language concepts, particularly in settings in which teachers and students navigate multiple languages. Similarly, Urrohimah and Maharsi (2022) examined gesture use, focusing on how Japanese EFL teachers employ gestures to improve the complexity and fluency of second language utterances. They found that metaphoric gestures had the most significant impact on fluency, although they did not affect accuracy.

Isnani (2021) contributed another dimension by exploring the impact of nonverbal interactions on students' perceptions of learning. Her research revealed that gestures accounted for 54.6% of the variance in student engagement, stressing their significant role in promoting students' involvement and positive learning outcomes. These findings align with those of Yunita et al. (2022), who also reported the importance of nonverbal communication in student engagement. From a more specialised perspective, Montiegel (2022) examined the use of gestures in classrooms for students with hearing impairments, demonstrating how specific gestures, such as pointing to the mouth and cupping the ear, are essential for developing students' linguistic skills. This study reinforces the notion that gestures are adaptable and critical across diverse educational settings, serving as integral components of effective classroom communication. This was also acknowledged by Mainela-Arnold et al. (2014).

Pertiwi and Indriani (2021) provided further insights by investigating how EFL learners perceive the importance of nonverbal communication, particularly gestures. Their findings indicate that students viewed gestures as crucial for maintaining motivation and concentration. Teachers should apply nonverbal cues to create a more engaging and productive learning environment. Similarly, Mejía-Laguna (2023) observed that gestures visually reinforce grammatical structures, facilitating students' focused attention and comprehension. Expanding on the role of technology in educational settings, Peng et al. (2022) introduced an innovative hand gesture recognition framework designed to enhance nonverbal interaction between educators and learners. This approach exemplifies the increasing convergence of technology and gesture research, offering a contemporary methodology to augment classroom communication and optimise the utilisation of gestures in instructional environments. Subsequently, Oppici et al. (2023) conducted a systematic review and meta-analysis to investigate the efficacy of gestures in foreign language vocabulary learning. The study concluded that enacting and observing gestures were equally efficacious in learning new vocabulary, although the authors declared the need for more rigorous methodologies to validate these findings.

Research on gestures in EFL classrooms has advanced, demonstrating their increasing significance in enhancing students' comprehension and engagement, as well as classroom management. Initial investigations established the foundation by illustrating how nonverbal communication can motivate learners, whereas subsequent studies have expanded their scope to encompass gesture recognition applications driven by technology. This corpus of research accentuates the critical role of gestures as integral components of multimodal teaching, offering valuable insights into their effective implementation across diverse educational contexts.

Research Gap

Although gestures have received increasing attention globally for improving comprehension, engagement, and retention in EFL classrooms, research in the Saudi ELT context remains scarce. While numerous studies have examined the effects of various gesture types (e.g., deictic, iconic, metaphoric, and beat gestures) across international contexts (Afdaliah, 2022; Sato, 2020; Yunita et al., 2022), no systematic investigation has explored their specific impact on Saudi EFL learners' comprehension and language learning. This gap is particularly significant, given

the influence of cultural factors on nonverbal communication (Oppici et al., 2023; Macedonia, 2014). Saudi learners may interpret and respond to gestures differently than learners in Western or East Asian contexts, where most existing research has concentrated. Moreover, although studies from other regions have explored gestures across various instructional phases such as introduction, explanation, practice, and review, no research has examined this in Saudi Arabia. This gap presents a critical challenge for understanding how gestures might be optimised for distinct pedagogical functions in the Saudi ELT context. Furthermore, while the short-term effects of gestures on comprehension and recall have been documented in other educational settings, the long-term impact of gestures on student outcomes, such as motivation, self-efficacy, and language proficiency in Saudi classrooms, remains unexplored. As Saudi Arabia is undergoing a rapid digital transformation of education, particularly after the COVID-19 pandemic, there is also an urgent need to investigate how gestures can be adapted to online and hybrid learning environments. With traditional classroom dynamics shifting in these settings, understanding the evolving role of gestures on digital platforms could provide valuable insights into enhancing student engagement and learning outcomes in virtual environments. Addressing these gaps will contribute significantly to the body of knowledge regarding the role of gestures in Saudi EFL classrooms. It will inform the development of sound pedagogical strategies tailored to this unique cultural and educational context.

Research Methods

Research Design

This study employed quantitative observational methodology to examine the impact of teachers' gestures, a crucial element of nonverbal communication, on students' comprehension in EFL classrooms. This study systematically observed classroom interactions, quantifying the frequency and contexts of various gesture types, and their association with students' understanding and engagement. Using an observational approach, the study analysed nonverbal communication in an authentic classroom setting, generating valuable insights into the probability of gestures enhancing learning outcomes.

Participants

The study employed a purposive sample of 12 university EFL teachers from an English language department in Saudi Arabia during the academic year of 2024–2025. These teachers represented various qualifications, teaching experiences, and academic ranks. The sample comprised eight males (66.67%) and four females (33.33%), with the majority of teachers holding doctoral (75.0%) and Master's degrees (25.0%). Most participants had 11–15 years of teaching experience (66.67%), with others ranging from 0–5 years to 16 years and above. The teachers' academic ranks included lecturers (41.67%), assistant professors (33.33%), and associate professors (25.0%), reflecting a well-adjusted distribution of instructional levels.

Each teacher was observed in their usual classroom, and class sizes varied considerably: 16.67% of classes had fewer than 10 students, 41.67% had between 10 and 20 students, 25.0% had 21 to 30 students, and 16.67% had more than 30 students (see Table 1).

The student participants were undergraduate Saudi learners enrolled in English language courses. They were primarily native Arabic speakers of a similar age and academic level, forming a relatively homogeneous group. Although their exact proficiency levels were not formally assessed, classroom observations revealed slight variations in the students' English abilities. These differences enabled a more refined analysis of how the teachers' gestures influenced comprehension, engagement, and participation across varying proficiency levels. Students were not

sampled individually; their responses were recorded behaviourally through direct classroom observations without collecting personal demographic data.

Table 1. Demographic characteristics of teacher participants (N = 12).

Category	Subcategory	Frequency (*n*)	Percentage (%)
Gender	Male	8	66.67
	Female	4	33.33
Age	30–39	5	41.67
	40–49	5	41.67
	50 and above	2	16.67
Qualifications	Doctorate	9	75.00
	Master's degree	3	25.00
Experience	0–5 years	1	8.33
	6–10 years	1	8.33
	11–15 years	8	66.67
	16 years and above	2	16.67
Class size	Fewer than 10	2	16.67
	10–20 students	5	41.67
	21–30 students	3	25.00
	More than 30	2	16.67
Academic rank	Lecturer	5	41.67
	Assistant Professor	4	33.33
	Associate Professor	3	25.00
	Total	**12**	**100.00**

Setting

Classroom environment: This study was conducted in an English language department in Saudi Arabia during the academic year of 2024–2025. The classrooms where the observations were made were standard EFL learning environments designed to facilitate interactive and communicative language teaching. Each classroom typically accommodated 10–30 students, with the desks arranged in a conventional layout that allowed clear visibility between the instructor and all students. The classrooms were equipped with essential teaching aids, including whiteboards, projectors, and audio equipment, which were periodically used during the lessons.

Class size and structure: Each class observed had a consistent number of students, typically ranging from 10 to 30, which provided a suitable group size for observing interactions between the instructor and students. The students were seated in rows facing the instructor, allowing for optimal observation of the instructor's gestures and the students' reactions. The layout of the classrooms facilitated the observation of nonverbal cues such as gestures, eye contact, and other forms of nonverbal communication.

Lesson duration: The lessons observed were standard 50-minute sessions typical of EFL classes. This duration provided sufficient time to observe a variety of teaching methodologies and the consistent use of gestures throughout the different phases of instruction, such as the introduction, explanation, practice activities, and review.

Observation Protocol

The observation protocol was methodically designed to systematically capture nonverbal communication, specifically teachers' gestures, in the classroom. This design drew upon empirical frameworks established in prior gesture-focused classroom research, which consistently categorise gestures into deictic, iconic, metaphoric, and beat types (Afdaliah, 2022; Lazaraton, 2004; Roth, 2001; Sato, 2020; Urrohimah & Maharsi, 2022). These categories have been shown to support vocabulary acquisition, content clarification, and learner engagement in EFL contexts (Montiegel, 2022; Roth & Lawless, 2002). The observation framework also incorporated students' responses, including comprehension signals, engagement, and participation, according to established indicators used in studies examining teacher immediacy and multimodal interaction (Gholamrezaee & Ghanizadeh, 2018; Isnani, 2021; Witt et al., 2004).

The protocol was subsequently refined through a pilot study with a limited sample of classes. Feedback from the pilot study was used to adjust the observation checklist, ensuring its comprehensiveness and efficacy in capturing a wide range of gestures and contextual applications. Previous research supports the reliability of real-time classroom observations using structured checklists and trained observers as a valid alternative to video-based analysis, especially in contexts where privacy concerns or limited technological access constrain recording (Denizci & Azaoui, 2020; Peng et al., 2022). This study examined various categories of teachers' gestures, as well as the contexts and the corresponding responses of the students. The relevant data are summarised in Table 2.

Classroom observations were conducted in real time without the aid of video or audio recordings. Instead, trained observers systematically recorded teachers' gestures and the students' responses using structured checklists and detailed field notes. This approach ensured a nonintrusive data collection process while adhering to ethical guidelines to safeguard the participants' privacy.

Table 2. Observation protocol for capturing teachers' gestures, contexts, and students' responses in EFL classrooms.

Category	Focus	Details
Types of gesture	Deictic gestures	Pointing to objects, texts, or visuals to direct the students' attention.
	Iconic gestures	Using hand movements to visually represent concepts (e.g., showing size or shape).
	Metaphoric gestures	Using gestures to represent abstract ideas (e.g., hands moving apart to signify expanding an idea).
	Beat gestures	Gestures used to accentuate speech rhythm and structure, such as subtle hand movements that align with key points in the teacher's verbal delivery.

(Continued)

Category	Focus	Details
Contexts	Introduction	How gestures were used to introduce new topics or concepts.
	Explanation	The role of gestures in clarifying and reinforcing verbal explanations.
	Practice	Observing how gestures guided the students during practice activities or group work.
	Review	The use of gestures in summarising and reviewing the lesson content.
Students' responses	Signs of comprehension	Nodding, following instructions, and correctly responding to questions.
	Engagement level	Observing whether students appeared more attentive and involved when gestures were used.
	Participation	Noting any increase or decrease in students' participation in response to the teacher's nonverbal cues.

Each observation session lasted approximately 50 min and encompassed the entire duration of the class. Observations were conducted multiple times across classes and instructors to ensure comprehensive data collection. Each instructor was observed over several lessons to account for pedagogical approaches and variations in the content.

Data Collection Tools

The primary data collection tool in this study was a structured observation checklist, designed to systematically record the occurrence of teachers' gestures, the corresponding behaviours of the students, and the relevant demographic data. The checklist was divided into two main parts. Part 1 focused on demographic data and included essential information about the teachers, such as gender, age, qualifications, years of experience, academic rank, class size, and participation in professional development. These data served to contextualise the observational findings by allowing the establishment of correlations between teachers' characteristics, use of gestures, and the subsequent impact on the students' responses. Part 2 outlined the observational criteria and systematically documented the frequency and efficacy of teachers' various gestures, namely, deictic, iconic, metaphoric, and beat gestures, across diverse instructional contexts, including introduction, explanation, practice, and review. In addition, this section recorded students' responses, such as comprehension indicators, engagement levels, and participation in classroom activities.

To ensure consistent measurement, the checklist incorporated two specific scales. The frequency scale assessed how often gestures and students' responses occurred, ranging from 1 (rarely observed) to 4 (always observed). Specifically, a score of 1 denoted infrequent or rarely occurring behaviours, 2 reflected occasional but inconsistent observations, 3 indicated regular and consistent presence, and 4 represented gestures or behaviours observed nearly all the time during the lesson. The effectiveness scale was employed to assess the impact of these gestures and behaviours on students, using a range from 1 (not effective/no impact) to 4 (very effective/significant impact). A score of 1 indicated little or no observable influence on students' comprehension, engagement, or participation; 2 reflected a minimal or somewhat noticeable

effect; 3 indicated a clear and positive impact; and 4 represented a strong, highly noticeable effect on learning outcomes. These scales enabled detailed and consistent documentation of both frequency and effectiveness across all observed classrooms.

Reliability and Validity

Inter-rater reliability was established to ensure the observations' consistency and accuracy. Three trained observers participated in the data collection process. A random selection method was used to sample 20% of the total classroom observations, ensuring a representative mix of teachers, class sizes, and instructional contexts. The observations from all three raters within this subset were compared with evaluate consistency. Given that Cohen's kappa is suited for two raters, Fleiss' kappa was used to account for agreement among multiple raters. The calculated Fleiss' kappa coefficient was 0.78, indicating a substantial level of agreement among the observers (Gwet, 2021). Any discrepancies in coding were addressed and resolved during calibration meetings to maintain consistency and reduce potential bias in the final dataset.

A pilot study supported the validity of the observation instrument in addition to its reliability. This preliminary investigation was conducted before the main data collection and involved two representative classes from the same department. The pilot study aimed to refine the observation instruments and ensure the checklist's clarity and practicality. Three substantial modifications were made to the checklist's format on the basis of the feedback obtained, enhancing its suitability for accurately capturing the required data during the main study. These steps ensured both the reliability and validity of the observational data.

Data Analysis

Descriptive and inferential statistical methods were used to analyse the data. Descriptive statistics were used to summarise the frequency of teachers' gestures and their effectiveness across various classroom contexts, with measures such as the mean, median, and mode calculated to identify trends in nonverbal communication. Inferential statistics included one-sample *t*-tests to determine whether the observed frequencies and effectiveness ratings of gestures significantly deviated from the hypothesised neutral mean, thus allowing for an assessment of whether certain gestures were utilised or perceived as more effective than expected. Furthermore, correlation analyses were performed to explore the relationships between different types of teachers' gestures and students' responses, examining the magnitude and direction of the associations between gestures' frequency and effectiveness, and outcomes such as comprehension, engagement, and participation.

Ethical Considerations

The study was conducted strictly according to ethical principles to safeguard all participants, including their rights and well-being. Teachers and students were provided with comprehensive information regarding the study's objectives and their involvement prior to obtaining informed consent. Participants were apprised of their right to withdraw from the study at any point without repercussions. To ensure confidentiality, personal data were de-identified and all information was securely stored, with access restricted to the research team. This study was designed to minimise disruption to pedagogical activities, prioritise the participants' comfort, and mitigate potential risks. The study was approved by the ethics committee at Northern Border University, confirming that all procedures complied with the requisite ethical standards.

Findings

Descriptive Statistics

This section presents descriptive and inferential statistics on the frequency and effectiveness of teachers' gestures in EFL classrooms. It compares different gesture types' usage and perceived impact, demonstrating their role in supporting students' comprehension and engagement. To answer the first research question, Table 3 presents the descriptive and inferential statistics on the frequency and effectiveness of different teachers' gestures in EFL classrooms, including deictic, iconic, metaphoric, and beat gestures. It outlines how often these gestures are employed and their perceived effectiveness in improving communication and student engagement.

Table 3. Descriptive and inferential statistics for the frequency and effectiveness of teachers' gestures in EFL classrooms.

Teachers' Gestures									
		Mean	**Median**	**Std Dev**	**Min**	**Max**	***t*-stat**	**df**	***p*-value**
Deictic gestures	Frequency	2.33	2.00	0.65	1.00	3.00	–3.5	11	0
	Effectiveness	3.00	3.00	0.95	2.00	4.00	0.15	11	0.88
Iconic gestures	Frequency	2.33	2.00	0.78	1.00	4.00	–2.56	11	0.03
	Effectiveness	2.92	3.00	0.79	2.00	4.00	0.44	11	0.67
Metaphoric gestures	Frequency	2.50	3.00	0.67	1.00	3.00	–3.01	11	0.01
	Effectiveness	3.00	3.00	0.74	2.00	4.00	–0.23	11	0.82
Beat gestures	Frequency	2.42	2.50	0.90	1.00	4.00	–2.66	11	0.02
	Effectiveness	2.83	3.00	1.03	1.00	4.00	–2.08	11	0.06
Total frequency		2.40	2.38	0.75	1.00	4.00	–4.14	11	0
Total effectiveness		2.94	3.00	0.88	1.00	4.00	–1.93	11	0.08

Note: A *p*-value below 0.05 indicates a significant difference.

Table 3 presents the descriptive and inferential statistics on the frequency and effectiveness of teachers' gestures in EFL classrooms. Iconic and metaphoric gestures were utilised with a similar frequency, generally occasional to frequent, with mean values between 2.33 and 2.50. The variability in frequency was moderate, as indicated by standard deviations between 0.65 and 0.90. The *t*-test results demonstrated that the frequencies of deictic gestures ($t = -3.50$, $p < 0.001$), iconic gestures ($t = -2.56$, $p = 0.03$), and metaphoric gestures ($t = -3.01$, $p = 0.01$) were significantly lower than the hypothesised population mean of 3.00. This suggests that these gesture types are less frequently employed than expected in classroom settings. Similarly, the frequency of beat gestures ($t = -2.66$, $p = 0.02$) also exhibited a significant difference, indicating a lower than expected frequency of utilisation. Regarding the effectiveness of gestures, Deictic gestures ($t = 0.15$, $p = 0.88$), iconic gestures ($t = 0.44$, $p = 0.67$), and metaphoric gestures ($t = -0.23$, $p = 0.82$) were not found to have a statistically significant difference from the hypothesised mean of 3.00. This indicates that teachers generally perceive these gestures as moderately effective, with no significant variation from what might be expected. For beat gestures, while the effectiveness ($t = -2.08$, $p = 0.06$) approached significance, it did not meet the conventional threshold of $p < 0.05$,

suggesting a trend towards lower perceived effectiveness but insufficient evidence to conclude a significant difference. The overall frequency of gestures, averaging 2.40, is significantly lower than 3.00 ($t = -4.14$, $p < 0.001$), indicating that gestures are employed occasionally rather than frequently. The combined mean of 2.94 for effectiveness was not significantly different from the expected mean ($t = -1.93$, $p = 0.08$), which suggests that while gestures are perceived as moderately effective, this perception does not significantly deviate from expectations. These findings suggest that while teachers find gestures moderately effective overall, certain types of gestures, particularly deictic and iconic, are utilised less frequently than might be expected.

Concerning the second research question, Table 4 illustrates the descriptive and inferential statistics on the frequency and effectiveness of gestures across various instructional contexts, including introductions, explanations, practices, and reviews.

Table 4. Descriptive and inferential statistics for the frequency and effectiveness of gestures across instructional contexts.

		Contexts							
		Mean	**Median**	**Std Dev**	**Min**	**Max**	***t*-stat**	**df**	***p*-value**
Introduction	Frequency	2.75	3.00	1.06	1.00	4.00	–0.82	11	0.43
	Effectiveness	3.08	3.00	1.00	1.00	4.00	0.29	11	0.78
Explanation	Frequency	3.00	3.00	3.00	3.00	3.00	0	11	1
	Effectiveness	3.17	3.00	0.83	2.00	4.0	0.69	11	0.5
Practice	Frequency	2.83	2.83	2.83	2.83	2.83	–0.62	11	0.55
	Effectiveness	3.17	3.17	3.17	3.17	3.17	0.62	11	0.55
Review	Frequency	2.50	2.50	2.50	2.50	2.50	–2.17	11	0.05
	Effectiveness	3.00	3.00	0.85	2.00	4.00	0	11	1
Total frequency		2.77	2.75	0.96	1.00	4.00	–1.03	11	0.33
Total effectiveness		3.10	3.12	0.91	1.00	4.00	0.46	11	0.66

Note: A *p*-value below 0.05 indicates a significant difference.

Table 4 presents the descriptive and inferential statistics on the frequency and effectiveness of gestures across various instructional contexts, including introductions, explanations, practices, and reviews. Gesture frequency was the highest during the explanation phase (mean = 3.00), indicating frequent utilisation of nonverbal cues to complement verbal explanations. The practice phase also exhibited a relatively high use of gestures (mean = 2.83), underlining the role of gestures in facilitating student activities. In contrast, gestures were less frequent in the phases of the introduction (mean = 2.75) and review (mean = 2.50). Remarkably, the *t*-test for review frequency approached statistical significance ($t = -2.17$, $p = 0.05$), suggesting that gestures may be utilised less frequently during this phase than expected. The effectiveness of gestures was rated as moderate across all phases, with mean values ranging from 3.00 to 3.17. The gestures were perceived as slightly more effective during the explanation and practice phases (mean = 3.17), accentuating their importance in enhancing content clarity and students' engagement during these interactive lesson components. However, none of the effectiveness ratings deviated significantly from the hypothesised mean of 3.00, as indicated by *p*-values that exceeded 0.05. The average gesture frequency was 2.77, indicating occasional and frequent use. The mean total effectiveness was 3.10, reflecting a generally favourable perception of gesture use. However, the

lack of statistically significant results suggests that this perception aligns with expectations of an average classroom environment. In conclusion, while gestures are consistently utilised and perceived as moderately effective across different instructional contexts, the statistical analysis indicates no significant deviation from the expected usage patterns, except for a slightly lower frequency of gestures during the review phase.

Table 5 provides descriptive and inferential statistics on the frequency and effectiveness of students' responses to teachers' gestures, focusing on comprehension, engagement, and participation.

Table 5. Descriptive and inferential statistics for the frequency and effectiveness of students' responses to teachers' gestures.

Students' responses									
		Mean	**Median**	**Std Dev**	**Min**	**Max**	***t*-stat**	**df**	***p*-value**
Signs of Comprehension	Frequency	2.67	3.00	0.65	2.00	4.0	−1.76	11	0.11
	Effectiveness	2.83	3.00	0.72	2.00	4.00	−0.82	11	0.43
Engagement Levels	Frequency	2.42	2.00	0.67	2.00	4.00	−3	11	0.01
	Effectiveness	2.83	3.00	0.72	2.00	4.00	−0.82	11	0.43
Participation	Frequency	2.75	3.00	0.87	1.00	4.00	−1	11	0.34
	Effectiveness	2.83	3.00	0.72	2.00	4.00	−0.82	11	0.43
Total frequency		2.61	2.67	0.73	1.00	4.00	−1.85	11	0.09
Total effectiveness		2.83	3.00	0.72	2.00	4.00	−0.82	11	0.43

Note: A *p*-value below 0.05 indicates a significant difference.

Table 5 presents the descriptive and inferential statistics on the frequency and effectiveness of students' responses, focusing on signs of comprehension, engagement levels, and participation in response to teachers' gestures. The frequency of signs of comprehension (mean = 2.67) indicated that students frequently exhibited nonverbal cues suggesting understanding, although this frequency did not significantly differ from the neutral value of 3.00 ($t = -1.76$, $p = 0.11$). The perceived effectiveness of gestures in supporting comprehension was moderate (mean = 2.83) and also demonstrated no significant deviation from expectations ($t = -0.82$, $p = 0.43$). In contrast, engagement levels revealed a significant reduction in gesture frequency (mean = 2.42, $t = -3.00$, $p = 0.01$), suggesting that gestures were employed less frequently than expected to foster student engagement. The effectiveness of gestures in enhancing engagement remained moderate (mean = 2.83) and was not significantly different from the hypothesised mean ($t = -0.82$, $p = 0.43$). The frequency of participation (mean = 2.75) reflects occasional to frequent utilisation of gestures to encourage students' involvement, with no significant difference from the expected value ($t = -1.00$, $p = 0.34$). The effectiveness of gestures in promoting participation was consistently rated as moderate (mean = 2.83), with no significant deviation from the neutral point ($t = -0.82$, $p = 0.43$). Overall, the total frequency of students' responses averaged 2.61, approaching significance ($t = -1.85$, $p = 0.09$), whereas the total effectiveness of gestures in eliciting these responses remained moderate (mean = 2.83, $t = -0.82$, $p = 0.43$). These findings indicate that while gestures are utilised relatively frequently and perceived as moderately effective, their frequency in promoting engagement is notably lower than expected, suggesting an area for potential improvement in leveraging nonverbal cues to enhance students' participation and engagement.

Correlation Analysis

This section presents the findings of the correlation analysis, examining the relationships among teachers' gestures, the contexts in which they are used, and students' responses. The analysis showed how these factors contribute to classroom engagement and learning outcomes. To examine the fourth research question, Table 6 illustrates the relationships among teachers' gestures, instructional contexts, and students' responses, offering insights into how nonverbal communication influences students' comprehension, engagement, and participation in EFL classrooms.

Table 6. Correlation matrix of teachers' gestures, context of the gestures, and students' responses.

Dimensions	Teachers' gestures	Contexts	Students' responses
Teachers' gestures	1	0.7874	0.5066
Contexts of gestures	0.7874	1	0.485
Students' responses	0.5066	0.485	1

Teachers' gestures and contexts exhibited a strong positive correlation (r = 0.7874), indicating that teachers who frequently employ gestures tend to utilise them consistently across various instructional contexts, such as introduction, practice, and review. This consistency suggests a systematic approach to nonverbal communication throughout different phases of the lesson. Additionally, teachers' gestures and students' responses showed a moderately positive correlation (r = 0.5066), implying that while gestures benefit students' engagement, comprehension, and participation, other contributing factors may influence these outcomes. Furthermore, the correlation between the contexts of using gesture and students' responses was moderate (r = 0.4850), suggesting that increased use of gestures in instructional contexts is generally associated with improved student responses. However, this influence appears to be supportive rather than central in shaping students' behaviour.

To conclude, the strongest relationship was observed between teachers' gestures and the context of gestures, implying that gestures were applied consistently across lesson phases. Moderate correlations with students' responses suggest that gestures contribute to students' engagement and comprehension; however, additional factors are likely to influence these outcomes. To address the third research question, Table 7 presents the relationships of various types of gestures (deictic, iconic, metaphoric, and beat). It offers insights into how these gestures are used and influence classroom communication.

Table 7. Correlation matrix of deictic, iconic, metaphoric, and beat gestures.

Dimensions	Deictic gestures	Iconic gestures	Metaphoric gestures	Beat gestures
Deictic gestures	1	0.2988	0.414	0.6718
Iconic gestures	0.2988	1	0.5196	0.0432
Metaphoric gestures	0.414	0.5196	1	0.2246
Beat gestures	0.6718	0.0432	0.2246	1

Deictic and beat gestures demonstrated the strongest positive correlation (r = 0.6718), suggesting that when teachers use gestures to direct attention, they frequently accompany them with rhythmic beat gestures to reinforce the flow of speech or actions. In contrast, iconic and metaphoric gestures showed a moderate positive correlation (r = 0.5196), indicating that teachers who often use gestures to depict concrete objects also tend to employ gestures that convey abstract ideas. The relationship between deictic and iconic gestures was relatively weak (r = 0.2988), suggesting that these two gesture types are generally used independently. Meanwhile, iconic and beat gestures displayed a very low correlation (r = 0.0432), reflecting a minimal association between object-representing gestures and those used for rhythmic emphasis.

Given these findings, Table 7 displays the strong relationships between certain gesture types, particularly between deictic and beat gestures. In contrast, other gesture combinations, such as iconic and beat gestures, are less commonly associated. These findings suggest that certain types of gestures co-occur, whereas others are more context-specific. Table 8 illustrates the relationships between gesture use across the instructional phases of introduction, explanation, practice, and review, offering insights into how gestures are applied during the various teaching stages.

Table 8. Correlation matrix of the introduction, explanation, practice, and review phases.

Dimensions	Introduction	Explanation	Practice	Review
Introduction	1	0.6325	0.4135	0.5939
Explanation	0.6325	1	0.712	0.4781
Practice	0.4135	0.712	1	0.6078
Review	0.5939	0.4781	0.6078	1

The introduction and explanation phases exhibited a strong positive correlation (r = 0.6325), indicating that educators who frequently used gestures while introducing new material also tended to incorporate them during the explanation phase. This pattern suggests a cohesive application of gestures during the early stages of instruction. Explanation and practice demonstrated the highest correlation (r = 0.7120), implying that teachers who rely heavily on gestures during explanations continue this practice during student-centred activities. This reinforces the role of gestures in clarifying concepts and supporting application. The correlation between review and practice was moderately strong (r = 0.6078), indicating that gestures used in practice are often revisited during reviews to reinforce learning. By contrast, the weakest correlation was between introduction and practice (r = 0.4135), suggesting that gestures used for content delivery at the beginning of a lesson are not commonly carried over into the practice phase, which often focuses on students' application rather than initial presentation of the content.

Gestures are closely associated with the explanation and practice phases, suggesting consistent utilisation of nonverbal cues for both expounding and reinforcing content. The moderate correlations with the review phase suggest that gestures facilitate concept reinforcement, while the weaker connection between introduction and practice reflects the distinct roles of these phases in the instructional process.

In response to the fifth research question, Table 9 illustrates the relationships among comprehension signals, engagement levels, and participation, providing insights into how these factors interact in the classroom setting.

Table 9. Correlation matrix of signs of comprehension, engagement level, and participation.

Dimensions	Signs of comprehension	Engagement level	Participation
Signs of comprehension	1	0.3479	0.4835
Engagement level	0.3479	1	–0.1178
Participation	0.4835	–0.1178	1

Signs of comprehension and participation exhibited a moderate positive correlation (r = 0.4835), indicating that students who demonstrate an understanding of the material are likelier to participate actively in classroom activities. This reflects a meaningful link between comprehension and participation during classroom interactions. In contrast, the relationship between signs of comprehension and engagement level was weaker (r = 0.3479), suggesting only a modest connection. This implies that while students may show signs of understanding, it does not necessarily translate into consistent engagement throughout the lesson. Interestingly, engagement level and participation revealed a negative correlation (r = –0.1178), indicating that students may be mentally engaged without actively contributing or interacting, highlighting the distinct nature of these two behavioural dimensions. In summary, the signs of comprehension were moderately associated with participation. By contrast, engagement levels appear to be less related to comprehension and participation, potentially indicating that engagement and participation manifest distinctly in classroom dynamics.

Discussion

Research Question 1

- Which types of gestures (deictic, iconic, metaphoric, or beat) are most frequently used by teachers in EFL classrooms?

The analysis indicates that teachers in Saudi EFL classrooms use deictic gestures (pointing to objects or locations) and iconic gestures (depicting physical actions or objects) most frequently. Beat gestures, which sustain rhythm and structure in speech, are moderately employed, whereas metaphoric gestures, representing abstract concepts, are utilised the least. This pattern suggests that teachers predominantly rely on gestures to provide visual and concrete support for verbal explanations. Contrastingly, gestures that convey abstract ideas are employed more selectively and in specific contexts. The frequent utilisation of deictic gestures can be attributed to their efficacy in directing students' attention to key visual elements, such as instructional materials or classroom objects, which is particularly valuable in EFL classrooms where the learners may experience difficulties with verbal instruction alone. These gestures serve as direct visual references, facilitating learning by linking spoken language to concrete objects or actions (Matsumoto & Dobs, 2017). Similarly, iconic gestures are crucial for assisting learners in visualising new vocabulary and complex concepts, rendering abstract language more comprehensible (Macedonia et al., 2011). Teachers employ these gestures to physically demonstrate the meaning of words, reinforce understanding, and aid retention. The moderate utilisation of beat gestures reflects their role in sustaining key points and maintaining the rhythm of instruction, which helps structure discourse and maintain student engagement (Wakefield et al., 2018). These findings are consistent with previous research showing the central role of deictic and iconic gestures in enhancing comprehension and facilitating language acquisition. Macedonia et al. (2011) and Matsumoto and Dobs (2017) have reported the effectiveness of

these gestures in providing visual support for verbal instruction, particularly in EFL settings. The moderate utilisation of beat gestures aligns with the findings of Pi et al. (2021), who demonstrated that these gestures help to organise classroom communication and maintain students' focus. Conversely, the less frequent use of metaphoric gestures reflects their context-specific application, as noted by Roth and Lawless (2002), who found that such gestures are often reserved for more abstract or conceptual discussions. Overall, the findings confirm that teachers prioritise gestures that enhance the comprehension of concrete concepts, while more abstract gestures are selectively utilised to address specific instructional needs.

Research Question 2

- In what instructional contexts (introduction, explanation, practice, review) are teachers' gestures most commonly used in EFL classrooms?

The study reveals that EFL teachers employ gestures most extensively during the explanation and practice sessions of their lessons, with less frequent use in the introductory and review portions. This pattern suggests that gestural communication is prioritised in the more interactive and content-rich parts of the lesson, where visual aids are crucial for elucidating and enhancing students' comprehension of important concepts. The prevalence of gestures in the explanation phase can be attributed to teachers' efforts to explicate complex ideas and vocabulary, thus rendering abstract language more comprehensible to the learners. Iconic and metaphoric gestures are vital for demonstrating the relationships between concepts and providing visual representations of difficult ideas (Macedonia, 2014). Similarly, the high occurrence of gestures during practice activities sustains their importance in directing students' tasks and reinforcing instruction. In this phase, nonverbal cues are used to manage classroom dynamics, offer feedback, and assist students in applying their newly acquired knowledge (Urrohimah & Maharsi, 2022). In contrast, the reduced use of gestures in the introduction phase may be attributed to its more structured nature, which primarily focuses on presenting new materials rather than reinforcing them. Likewise, the review phase, which revisits previously taught content, may require less visual support, as students are already familiar with the concepts discussed. These findings are consistent with the current research, confirming the significance of gestures during the explanatory and practical instructional phases. Macedonia (2014) and Wang and Ye (2021) asserted that gestures play a crucial role in deconstructing complex concepts during explanations, facilitating students' comprehension of abstract ideas. Sato (2020) further corroborates the essential function of gestures in practice sessions, noting that teachers frequently employ them to direct classroom activities and promote students' participation in hands-on exercises. The lower frequency of gestures observed in the introductory and review stages corresponds to Gholamrezaee and Ghanizadeh's (2018) observations, which indicated that these phases typically relied more on verbal instruction and less on multimodal reinforcement. Nevertheless, the study also suggests that increasing gesture use in these stages could enhance students' engagement and understanding by providing additional cognitive support, as acknowledged by Oppici et al. (2023), as this would facilitate memory retention and promote deeper learning.

Research Question 3

- To what extent are the different types of teachers' gestures (deictic, iconic, metaphoric, and beat) correlated in EFL classrooms?

The study revealed a significant correlation between deictic and beat gestures, indicating that teachers frequently employed these gestures concurrently during classroom instruction. Iconic and metaphoric gestures demonstrated a moderate correlation, suggesting that they are often

utilised in conjunction, albeit less consistently, than deictic and beat gestures. The weakest correlation was observed between beat and iconic gestures, implying a lower likelihood of their simultaneous use. The strong correlation between deictic and beat gestures can be attributed to their complementary function in improving classroom communication. While deictic gestures direct students' attention to specific objects or areas, beat gestures indicate the rhythm and structure of speech, enabling teachers to disclose key points. This combined utilisation of gestures is essential for maintaining student engagement and attentiveness, especially when teachers must provide visual support for their verbal content (Pi et al., 2021). The moderate correlation between iconic and metaphoric gestures stems from their shared purpose of facilitating comprehension. Iconic gestures represent concrete actions or objects, whereas metaphoric gestures illustrate abstract concepts such as emotions or time, assisting students in grasping both tangible and intangible notions (Macedonia, 2014). The minimal correlation between beats and iconic gestures suggests that they serve distinct functions in instructional contexts. Beat gestures primarily reveal the rhythm and flow of speech, whereas iconic gestures aim to provide visual representations of specific objects or actions. This functional distinction elucidates the infrequent concurrent use of these gesture types in classroom environments (Vilà-Giménez et al., 2019). These results are consistent with those of previous studies on the use of gestures in educational contexts. Davis and Vincent (2019) explained how deictic and beat gestures function in conjunction, demonstrating that teachers employ these to direct attention and uphold salient information, thereby improving student engagement. The observed moderate correlation between iconic and metaphoric gestures aligns with Sherman and Nicoladis's (2005) research, which showed the significance of these gestures in facilitating students' conceptualisation of both concrete and abstract ideas. The weaker correlation between beat gestures and other types corroborates Macedonia et al.'s (2011) conclusion that beat gestures operate independently to maintain the rhythm of speech rather than to illustrate specific content.

Research Question 4

- What is the correlation between the frequency and effectiveness of teachers' gestures and students' comprehension and participation in EFL classrooms?

This study revealed a moderate positive correlation between the frequency of teachers' gestural communication and students' comprehension and engagement. This finding suggests that teachers' increased use of gestures is associated with enhanced understanding and more active participation in the classroom by the students. However, the relationship between the perceived effectiveness of teachers' gestures and student outcomes is less pronounced, indicating that although gestures are beneficial, their perceived efficacy does not consistently translate into improved student performance. The observed positive correlation between gesture frequency and comprehension aligns with research demonstrating that the regular utilisation of gestures provides supplementary visual cues for learners, particularly in language acquisition contexts. Gestures such as pointing to objects or materials (deictic gestures) direct students' attention and reinforce verbal information, whereas gestures that visually represent concepts (iconic gestures) facilitate the comprehension of abstract ideas (Frey & Lüke, 2023; Macedonia, 2014). Gao (2021) noted that frequent gesturing reduces cognitive load, enabling students to process verbal and nonverbal information more efficiently. For student engagement, consistent utilisation of nonverbal cues, particularly gestures, is central in promoting active participation and involvement in the classroom. Research by Blake et al. (2008) demonstrated that specific gestures, such as raising one's hand or directing attention to particular students, are clear nonverbal indicators of when and how students should contribute to class discussions and

encourage participation. Montiegel (2022) reported the significance of gestures in managing classroom dynamics, noting that they provide visual feedback that enhances interaction and elicits immediate responses from the students.

The less substantial correlation between gestures' effectiveness and student outcomes may be attributed to variations in how students perceive and interpret the gestures. Sato (2020) observed that certain students benefit significantly from nonverbal cues, whereas others rely more heavily on verbal instruction. This observation suggests that the perceived effectiveness of gestures may vary according to individual learning preferences or cultural differences in interpreting nonverbal communications (Isnani, 2021; Pertiwi & Indriani, 2021). Furthermore, Urrohimah and Maharsi (2022) posited that although gestures are valuable, their efficacy in enhancing comprehension and participation may be diminished when not accompanied by sufficient verbal reinforcement. These findings align with more comprehensive research on nonverbal communication in EFL classrooms. Afdaliah (2022) demonstrated that frequent gestures facilitate lexical retrieval and comprehensible input, which are essential for students' comprehension. Matsumoto and Dobs (2017) also declared that gestures contribute to a more interactive and engaging learning environment, promoting increased student participation. However, as Cai (2022) noted, gestures alone may not consistently result in significant improvements in learning outcomes, unless integrated with other pedagogical strategies. Similarly, Oppici et al. (2023) cautioned that even though gestures can enhance learning, their efficacy may be contingent upon factors such as the complexity of the material and the students' proficiency levels.

Research Question 5

- To what extent are the different types of teachers' gestures related to students' comprehension, engagement, and participation in EFL classrooms?

The study revealed that different types of teachers' gestures (deictic, iconic, metaphoric, and beat) positively correlated with students' comprehension, engagement, and participation in EFL classrooms. However, the magnitude of these correlations varied among the gesture types. Deictic gestures, which indicate direct attention, exhibit the strongest association with comprehension by facilitating students' visual connection of verbal information to specific objects or lesson components. Iconic gestures, representing concrete actions or objects, are closely associated with engagement, whereas metaphoric gestures, representing abstract ideas, significantly enhance comprehension and participation. Beat gestures, which report the rhythm and structure of speech, contribute more to participation but have a lesser impact on comprehension. The strong correlation between deictic gestures and comprehension can be attributed to their capacity to provide clear visual cues that support students' understanding of the verbal content. Matsumoto and Dobs (2017) observed that deictic gestures are particularly effective in focusing attention and clarifying instructions, rendering them valuable in guiding students through complex language materials. Iconic gestures, which visually depict actions or objects, assist students in connecting abstract language to tangible concepts and increase their engagement in classroom activities. This combination of verbal and visual inputs maintains students' focus, particularly in interactive learning environments, where iconic gestures render concrete ideas more comprehensible (Macedonia, 2014). Metaphoric gestures, which represent abstract concepts such as time or emotions, are closely associated with comprehension and participation. Through providing physical representations of abstract ideas, these gestures render complex concepts more accessible and easier to internalise (Roth & Lawless, 2002; Sherman & Nicoladis, 2005). Teachers who employ metaphoric gestures offer cognitive support

to facilitate the students' processing of advanced material. Furthermore, metaphoric gestures create more dynamic and engaging lessons, encouraging student participation by rendering abstract content more relatable (Yunita et al., 2022). The comparatively weaker correlation between beat gestures and comprehension can be attributed to their primary function of showing the rhythm and structure of speech, rather than conveying specific content. Nevertheless, beat gestures are crucial in promoting participation by signalling essential moments in the lesson, maintaining student engagement, and assisting students in following the flow of classroom discussions (Pi et al., 2021). Consequently, they are more effective in managing classroom dynamics than directly enhancing comprehension.

These findings are consistent with prior research that has elucidated the role of various gesture types in facilitating students' learning. Afdaliah (2022) and Macedonia (2014) demonstrated how deictic and iconic gestures enhance comprehension by providing visual representations that complement verbal explanations, thereby rendering language content more accessible. Urrohimah and Maharsi (2022) pointed out the significance of metaphoric gestures in improving engagement and participation, as they assist students in visualising abstract concepts and actively engaging in classroom discussions. The function of beat gestures in signalling speech rhythms and maintaining participation aligns with the findings of Vilà-Giménez et al. (2019), who stated their role in structuring speech and indicating salient points during lessons. The weaker relationship between beat gestures and comprehension reflects their primary function in managing the flow of speech, rather than conveying content-specific information.

Implications

The findings of this study have significant implications for EFL teachers seeking to elevate classroom engagement and student performance through the strategic utilisation of gestures. The study demonstrated a strong correlation between deictic gestures and students' comprehension, indicating that teachers should employ such gestures when presenting complex or novel materials. Fundamental gestures, such as visual aids or specific textual elements, can significantly enhance students' understanding. As these gestures require minimal effort or training, they can be readily incorporated into routine pedagogical practices, thereby effectively improving comprehension.

The incorporation of iconic and metaphoric gestures played a significant role in improving student engagement. These visual aids effectively communicate concrete and abstract concepts, invigorate instructional sessions, and make them more accessible. Teachers can employ these gestures when elucidating vocabulary, presenting narratives, or addressing complex ideas. To promote their adoption, brief training sessions or instructional videos demonstrating the engagement-enhancing potential of these gestures can provide educators with practical and readily implementable strategies. Beat gestures accentuate the rhythm and structure of speech, and are particularly efficacious in sustaining students' involvement. Teachers can readily integrate these gestures to confirm key points or indicate transitions, thereby assisting students in maintaining their focus and engagement. This straightforward technique can enhance classroom management and sustain students' attention throughout the instructional period.

Furthermore, it is recommended that teachers extend their use of gestures beyond the explanation and practice stages to encompass the introduction and review phases. Integrating nonverbal cues throughout a lesson can enhance students' comprehension and retention of information. During review sessions, rudimentary gestural techniques such as accentuating key points or indicating critical concepts can support learners more. Moreover, teacher training programmes should prioritise practical experiential instruction in effective use of classroom gestures over extensive theoretical sessions. Succinct demonstrations and collaborative learning

experiences would more effectively prepare educators to implement gesture-based techniques, ultimately improving students' performance in EFL contexts

Limitations and Direction for Further Research

This study had several limitations that warrant consideration. The primary constraint was the limited sample size, comprising only 12 teachers from a single institution, which impedes the generalizability of the findings. Future studies should expand the participant pool and include teachers from diverse backgrounds to provide more comprehensive insights into the use of gestures in EFL classrooms. Furthermore, this study's reliance exclusively on observational data may not fully capture the subtleties of how gestures influence learning. Incorporating students' feedback through questionnaires or discussions would be advantageous to obtain a more refined understanding of the effects of teachers' gestures. Subsequent research could also investigate the long-term impact of gesture usage on students' performance, including language proficiency, motivation, and information retention. Given the increasing prevalence of online and hybrid learning environments, examining how gestures can be effectively adapted to these platforms is particularly valuable. Finally, conducting cross-cultural studies could illuminate how cultural differences influence the interpretation and efficacy of gestures in EFL instruction, offering a more holistic perspective on their roles across diverse classroom settings.

Conclusion

This study elucidates the critical importance of teachers' nonverbal communication in increasing comprehension, interest, and engagement within EFL classrooms. The observations systematically examined various gesture types, including deictic, iconic, metaphoric, and beat gestures, revealing their contribution to a diverse learning environment. Although limited by a restricted participant pool and reliance on observational data, the study pointed to the tangible and immediate benefits of incorporating gestures into teaching methodologies, positioning them as fundamental pedagogical approaches rather than supplementary aids. These findings suggest several avenues for future research. Expanding the research to include diverse educational contexts and incorporating learners' feedback could offer more comprehensive insights into the impact of gestures on learning outcomes. As education evolves towards online and blended formats, exploring effective use of gestures in digital settings is imperative. Moreover, investigating gesture use across cultures in EFL contexts could elucidate how cultural differences affect the interpretation and efficacy of nonverbal cues in language acquisition. In conclusion, this study shows the significance of gestures as an integral component of EFL instruction and advocates for ongoing innovation in their application. Teachers can create more vibrant, welcoming, and compelling learning spaces by maximising their use of gestures. This approach enhances students' comprehensive and successful involvement in their language acquisition.

Declarations

- **Ethical approval and consent to participate**

The study was approved by the Institutional Review Board of Northern Border University and was conducted in line with the ethical standards outlined in the Declaration of Helsinki. The participants were informed about the study's objectives, and their anonymity was guaranteed. No identifying information was gathered, ensuring that the responses were handled entirely confidentially. Participation was voluntary, with informed consent implied.

- **Declaration of conflicting interests**

The author declares no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

- **Author contributions**

MHA is the sole author of this study and was responsible for conceptualising the research, designing the methodology, collecting and analysing the data, and preparing the manuscript.

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- **Availability of data and materials**

The data supporting this study's findings are available from the corresponding author upon reasonable request.

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Appendix

Checklist tool

Measurement criteria for teachers' gestures and students' responses

Part 1: Demographic data					
Gender	Male			Female	
Age	Under 30		30–39	40–49	50 and above
Qualifications	Master's Degree			Doctorate	
Years of experience	0–5 years		6–10 years	11–15 years	16 years and above
Academic rank	Lecturer		Assistant Professor	Associate Professor	Professor
Nationality	Saudi Arabian		Other Middle Eastern	North American	European/Asian
Class size	Fewer than 10		10–20 students	21–30 students	More than 30
Professional development	None		1–2 sessions	3–5 sessions	More than 5
Part 2: Observational criteria					
Aspect	**Measurement type**	**Scale 1**	**Scale 2**	**Scale 3**	**Scale 4**
			Teachers' gestures		
Deictic gestures	Frequency	Rarely	Occasionally	Frequently	Always
	Effectiveness	Not effective	Slightly effective	Moderately effective	Very effective
Iconic gestures	Frequency	Rarely	Occasionally	Frequently	Always
	Effectiveness	Not effective	Slightly effective	Moderately effective	Very effective
Metaphoric gestures	Frequency	Rarely	Occasionally	Frequently	Always
	Impact	No impact	Slight impact	Moderate impact	Significant impact
Beat gestures	Frequency	Rarely	Occasionally	Frequently	Always
	Behavioural impact	No impact	Slight impact	Moderate impact	Significant impact
			Contexts of gestures		
Introduction	Frequency	Rarely	Occasionally	Frequently	Always
	Effectiveness	Not effective	Slightly effective	Moderately effective	Very effective
Explanation	Frequency	Rarely	Occasionally	Frequently	Always
	Effectiveness	Not effective	Slightly effective	Moderately effective	Very effective
Practice	Frequency	Rarely	Occasionally	Frequently	Always
	Guidance Effectiveness	Not effective	Slightly effective	Moderately effective	Very effective
Review	Frequency	Rarely	Occasionally	Frequently	Always
	Review Effectiveness	Not effective	Slightly effective	Moderately effective	Very effective

(Continued)

Students' responses					
Signs of comprehension	Frequency	Rarely	Occasionally	Frequently	Always
	Effectiveness	No impact	Slight impact	Moderate impact	Significant impact
Engagement level	Frequency	Rarely	Occasionally	Frequently	Always
	Effectiveness	No impact	Slight impact	Moderate impact	Significant impact
Participation	Frequency	Rarely	Occasionally	Frequently	Always
	Effectiveness	No impact	Slight impact	Moderate impact	Significant impact