

Pragmatic Competence in EFL: The Impact of Multimodality on Interpreting Conversational Implicatures

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Abstract

This study examines the impact of modality (textual vs. multimodal) on EFL learners' ability to interpret conversational implicatures across different proficiency levels accurately. 120 English majors (120 EFL learners (at two proficiency levels) and five native English speakers) at Prince Sattam bin Abdulaziz University during the ^{first} term of 2022 completed an innovative multimodal task in which they wrote their interpretations of conversational implicatures. The mean scores of the proficiency groups were determined using descriptive statistics. A one-way ANOVA was used to identify significant differences across groups, and post-hoc analysis was utilized to determine areas of significance. The findings indicated that accurate interpretations of conversational implicatures correlated positively with language proficiency and multimodality. Additionally, after controlling for proficiency level, EFL learners' interpretations were more accurate in multimodal than textual tasks. This conclusion indicates that multimodal approaches may be more effective than the traditional and dominant textual approaches for revealing EFL learners' ability to interpret pragmatic conversational implicatures.

Keywords: pragmatic comprehension, conversational implicature, multimodality, audio-visual modality, multimodal input

Introduction

Pragmatic competence is critical in effective communication, encompassing the ability to use and comprehend language in context appropriately (Thomas, 1983; Leech, 1983). Learners who lack pragmatic knowledge may experience pragmatic failure due to their inability to understand the intended meaning of an utterance beyond its literal meaning. Comprehending conversational implicatures is essential to effective, pragmatic comprehension, which can be challenging and dependent on contextual cues and background knowledge. Furthermore, the level of comprehension difficulty can vary depending on whether additional cues, such as body language, gestures, facial expressions, and tone of voice, are present for listeners (Bromberek-Dyzman et al., 2021). These cues can facilitate conversational implicature and direct access to the speaker's intended meaning, as supported by findings from several L1 pragmatic comprehension research. Therefore, understanding the role of multimodal cues in conversational implicature recognition, processing, and interpretation is critical (Sağdıç, 2021; Taguchi & Youn, 2022). While various factors affect second language learners' ability to decode conversational implicatures, pragmatic comprehension is increasingly recognized as a fundamental aspect of communicative competency in second language acquisition, reflected in various standardized English language proficiency tests (Kang et al., 2019).

Despite increasing interest in pragmatic comprehension and assessment in L2 learning, several recurring issues have been documented in the literature on L2 pragmatics (Bromberek-Dyzman et al., 2021; Chun, 2022; Köylü, 2018; Taguchi & Youn, 2022; Taguchi & Yamaguchi, 2019). These issues include the lack of a well-established definition of the level of conventionality, combining several types of speech acts into a single classification of conventional implicatures, the excessive use of multiple-choice questions to assess pragmatic comprehension lacking task authenticity, and the scarcity of research focusing on developing multimodal tasks incorporating audio-visual content that better reflects the pragmatic comprehension that occurs in real-life conversations. These issues hinder the ability to accurately measure L2 learners' pragmatic comprehension of conversational implicatures and provide insights into how they develop pragmatic competence in real-life conversations. Therefore, exploring new methods that better reflect pragmatic comprehension in real-life conversations is needed compared to the textual modality that dominates pragmatic research.

The present study investigated the impact of modality types (textual vs. multimodal) on learners' ability to accurately interpret conversational implicatures across proficiency groups in a typical EFL context. The impact of modality types on interpreting conversational implicatures and the extent to which available multimodal cues can facilitate comprehension is unclear and largely unexplored. While research on pragmatic comprehension has primarily focused on the textual modality, only a limited number of studies have incorporated the aural modality (Culpeper et al., 2018; Kang et al., 2019; Köylü, 2018). Multimodality offers abundant communicative cues such as tone of voice, facial expressions, gestures, and body language, which are not available in a textual modality (Bromberek-Dyzman et al., 2021; Yang et al., 2018), thereby enhancing implicature recognition, processing, and interpretation. Therefore, investigating the role of

multimodal cues in conversational implicature recognition, processing, and interpretation using tasks that incorporate audio-visual content is needed. This study aims to address gaps in the literature by identifying whether multimodality constitutes a determining factor in modulating implicature recognition, comprehension, and accurate interpretation for EFL learners. The findings can have implications for second language pedagogy and assessment and our understanding of how multimodal cues contribute to pragmatic competence in real-life conversations.

Literature review

Conversational implicature

Conversational implicature refers to a speaker's intended meaning that, rather than being directly encoded in their utterances, is inferred by the listener based on contextual cues (Grice, 1975). The difference between the spoken words and their intended meanings prompts the interlocutor to utilize linguistic and non-linguistic contextual cues to deduce the underlying message. Grice (1975) contends that conversational implicature can be inferred by the listener through several sources of information, including (1) the literal meaning of the words used and any related references, (2) the Cooperative Principle and its maxims, (3) the linguistic and non-linguistic context of the utterance, and (4) any additional background knowledge (p. 50). All of this information is assumed to be available to both participants in the interaction.

In this sense, though the semantic meaning is necessary, the semantic meaning alone can be insufficient for enabling the hearer to understand the speaker's intended meaning. Listeners must actively seek additional context clues and activate their prior knowledge to arrive at the speaker's intended meaning relevant to the discourse. Blome-Tillmann (2013) asserted that 'conversationally implicated content does not contribute to the conventional meaning of an utterance' (p.174-175). A conversational implicature can also arise when flouting a Gricean maximum. According to Grice's Cooperative Principle (1975), interlocutors in an interaction must adhere to four conversational maxims, namely Quantity, Quality, Relation, and Manner (p. 45-47), and any non-observance of these maxims will lead the hearer to work out the intended meaning and create a conversational implicature. Consider the following example.

Mike: Oh ... I have run out of petrol.

Susan: Look, there is a garage near the corner!

In this example, if Susan were alluding only to the presence of a garage at a specific location, she would be flouting the conversational maxim of relevance. However, from the context, the listener can infer that Mike implies that Mike can obtain petrol from the garage. Accordingly, when a Gricean maxim is flouted, conversational implicature is generated. Sperber and Wilson (1997) summarised the four Gricean maxims, condensing them into a single notion: the Communicative Principle of Relevance. According to this principle, human cognitive processes are constructed to achieve the most efficient cognitive effect by utilizing the least processing effort. To achieve optimal results, individuals must focus exclusively on what is most relevant during a

conversation. According to Sperber and Wilson (1997), conversational implicature occurs when one utters a message that, while not entirely explicit, is still sufficiently complete in its relevance to the conversation and can be efficiently cognitively processed with the least amount of effort possible.

Irrespective of the theory invoked, comprehension of conversational implicatures is challenging, even among interlocutors sharing the same L1. Hence, they are bound to pose difficulties for L2 learners, particularly those at lower levels. According to Taguchi et al. (2017), decoding conversational implicatures is a challenging endeavor for L2 learners because it requires the ability to recognize both linguistic and contextual cues, comprehend the literal meaning of the utterance, identify the difference between the literal meaning and its implied message, and, ultimately, deduce the intended meaning.

L2 comprehension of conversational implicatures

A growing body of literature has examined L2 learners' comprehension of conversational implicatures, thereby revealing a variety of factors that influence their comprehension, such as language proficiency (e.g., Köylü, 2018; Shively et al., 2008), learning environment (e.g., Taguchi, et al., 2017), length of residence (e.g., Bouton, 1994b; Sağdıç, 2021), cultural background (e.g., Koh et al., 2022) and conventionality of implicatures (e.g., Taguchi & Youn, 2022). L2 proficiency and task authenticity have been identified as the most significant factors influencing the L2 learners' comprehension of conversational implicatures (Taguchi & Youn, 2022). The positive impact of L2 proficiency on the learner's ability to comprehend conversational implicatures has been supported by several empirical studies (Bouton, 1988; 1994a; 1994b; 1994c; Çiftlikli & Demirel, 2022; Sağdıç, 2021; Taguchi, 2013; Shively et al., 2008). The reports indicate that, as English proficiency increases, L2 learners are more likely to perceive conversational implications accurately, regardless of the means of assessment used. The study by Chun (2022) has further suggested that while the degree of conventionality and type of speech act does not have a significant impact on L2 learners' comprehension of conversational implicature in requests and refusals, the development of strong English language skills is crucial for adequate implicature comprehension.

The methods used to evaluate learners' comprehension of conversational implicatures have evolved considerably over the past decade. Originally, multiple-choice tasks were presented in a highly structured manner; later, more naturalistic approaches were employed, such as presenting task items orally or using authentic audio-visual tasks with either a written or oral production component. Bouton (1988, 1994a, 1994b, 1994c) pioneered conversational implicatures research using a text-based multiple-choice test; the test was administered to 436 ESL learners to assess the impact of cultural background on L2 learners' derived meanings. Participants had to select the most appropriate implication for each item based on the conversation between the two interlocutors. The findings indicated that non-native speakers' interpretations of implicatures, even among those with high English proficiency, differed from the interpretations of native speakers. Later, Bouton (1994a) examined whether living in the target language culture and communicating in English on

a daily basis would promote the comprehension of conversational implicatures. The results of a study using 33-item multiple-choice questions demonstrated that significant differences between L2 learners' interpretations and those of native English speakers were due to the learners' inability to understand the criticism. However, their performance was markedly improved for items that required familiarity with American culture. Bouton (1994b) further explored the longitudinal development of L2 learners' ability to decode conversational implicatures and found that those who lived abroad for 54 months performed considerably better than those who stayed for 18 months. In addition, Bouton (1994c) examined whether explicit classroom instruction on several types of conversational implicatures can accurately interpret conversational implicatures. Based on the pre-and post-test statistics, formal instruction was most effective when it focused on formulaic implicatures.

Taguchi (2013) expanded on Bouton's work by using an aural modality to investigate the interaction between L2 learners' English proficiency and their understanding of implied meanings as measured by their response accuracy and speed. The measurement instrument was a 38-item computer-based listening test with multiple-choice items used to assess the L2 learners' ability to comprehend various conversational implicatures. The results indicated that, as L2 proficiency increased, the accuracy of interpreting conversational implicatures improved significantly. However, proficiency did not affect the comprehension speed. Later, Taguchi et al. (2017) examined the accuracy and comprehension of speech that included conventional and non-conventional Chinese implicatures using a 36-item computerized listening test accompanied by a multiple-choice test. The results supported previous findings, showing a significant correlation between accuracy and types of implicature but not between comprehension speed and implicature type. In other words, regardless of the type of implicature tested, the time given to the participants did not affect their ability to interpret them correctly. In addition, advanced L2 learners significantly outperformed their counterparts.

Recently, Sağdıç (2021) investigated how proficiency, length of residence, and intensity of interaction in a target language impact second language learners' pragmatic ability in comprehending conversational implicature. The study involved 68 participants, 38 native English speakers and 30 L2 English users, who completed a pragmatic listening test and a language contact profile survey. Results revealed a significant relationship between implied meaning comprehension and learners' proficiency, length of residence, and intensity of interaction, with proficiency being the strongest predictor. The study also found that speaking time had a moderate relationship with implied meaning comprehension. These findings have implications for L2 pragmatic development and suggest that instruction should focus on developing learners' linguistic proficiency and providing opportunities for meaningful interactions in the target language. Çiftlikli and Demirel (2022) conducted a study to investigate the relationship between second language (L2) proficiency and the ability to comprehend conversational implicatures among Turkish English as a foreign language (EFL) learners. The study employed a listening comprehension test that included items designed to assess the comprehension of conversational implicatures. The results revealed a significant positive correlation between L2 proficiency and the ability to comprehend

conversational implicatures. Specifically, participants with higher L2 proficiency scores performed significantly better on test items requiring the comprehension of conversational implicatures than those with lower L2 proficiency scores. Chun (2022) investigated how the degree of conventionality and type of speech act affect L2 learners' comprehension of conversational implicature in requests and refusals among fifty native speakers (NS) and 150 L2 English learners. An oral Discourse Complete Task (DCT) with interpretation was developed using authentic audio-visual language samples. Results indicated that L2 learners' speaking and listening skills significantly contribute to producing relevant responses and appropriate interpretations. At the same time, the degree of conventionality and type of speech act does not significantly affect L2 learners' comprehension of conversational implicature. The study emphasized the importance of developing strong English language skills to interpret conversational implicatures accurately.

Shively et al. (2008) were the first to initiate an audio-visual modality, accompanied by a text-based production response, to examine L2 learners' comprehension of a type of conversational implicature that is ironic in Spanish. This study aimed to compare the effects of two modalities (written vs. audio-visual) on comprehension of Spanish irony. There were 55 L2 learners of Spanish who were presented with six scenarios of irony and two distractors. Among the respondents, 27 attempted the text-based format of the test, and 28 completed the audio-visual format. Both groups were required to write down the intended meaning of ironic statements. These findings corroborated those of earlier studies, which revealed that irony recognition improves with proficiency. However, implementing an audio-visual modality did not impact Spanish learners' ability to comprehend irony. Thus, different modes of assessment did not result in significant differences in the respondents' scores. The authors speculated that the audio-visual modality posed a more significant cognitive load than the written modality due to working memory and processing constraints relative to L2 learners. Logically, an audio-visual task requires learners to recall events, whereas a written task does not.

Bromberek-Dyzman et al. (2021) conducted a study on the comprehension of irony, a type of conversational implicature, in both the first language (L1) and second language (L2) of participants in the auditory, textual, and audio-visual modalities. Using excerpts from the popular T.V. series *House M.D.*, participants were presented with reading, listening, or watching tasks in their L1 or L2. Results indicated that irony comprehension was more efficient when presented in modalities that conveyed multiple cues signaling irony (i.e., auditory and audio-visual) than the textual modality. Participants were faster at recognizing irony in the audio-visual and auditory modalities relative to the textual modality. These findings highlight the importance of considering multimodal cues in comprehending both L1 and L2 irony. Li et al. (2022) investigated the role of auditory and visual cues in interpreting Mandarin ironic speech. Sixty-three native Mandarin speakers participated in a perception experiment in which ironic criticisms and compliments and their literal counterparts were presented in audio-only, visual-only, and audio-visual conditions. A two-alternative forced-choice task measured participants' interpretation of the expressions. Results indicated that visual cues played a dominant role in interpreting Mandarin ironic speech, as ironic criticisms and compliments were interpreted best in the visual-only condition.

A review of the literature on L2 conversational implicatures reveals two recurring issues. First, to the best of our knowledge, no study has investigated the effects of different modalities (textual vs. multimodal) on the interpretation of L2 English conversational implicatures among monolingual contexts. This study proposes that multimodality can play a critical role in learners' ability to accurately interpret conversational implicatures due to the availability of multiple contextual cues. Researchers can gain a more comprehensive understanding of how language users process and interpret information in real-world situations by investigating the influence of contextual factors on the derivation of implicatures. Second, the dominant use of multiple-choice tests in assessing L2 pragmatic comprehension in the literature raises concerns, despite the reported challenges and limitations in constructing such measures (Culpeper et al., 2018; Köylü, 2018). These challenges include unreliable distractors, predetermined interpretations, and lack of task authenticity, which may compromise the validity of multiple-choice tests to measure L2 pragmatic comprehension (Chun, 2022). This raises questions about whether the results obtained from multiple-choice tests genuinely reflect the pragmatic comprehension of L2 learners as observed in everyday conversations.

Considering the gaps in the current knowledge, the study aimed to contribute to the existing literature by exploring the extent to which two modalities (textual vs. multimodal) may affect EFL learners' ability to recognize, process, and provide appropriate interpretations of conversational implicatures across different proficiency groups. The extent to which EFL learners' interpretations of the textual modality correspond to their interpretations of the multimodal task is also examined to determine which test modality provides a reliable indication of their competency to decode a speaker's intended meaning in real-life interactions. A failure to interpret an implicature in one mode rather than another can provide valuable insights into the effects of contextual cues when recognizing and interpreting conversational implicatures in the L2. Therefore, the following research questions were formulated.

1. How successful are EFL learners in accurately interpreting conversational implicatures across proficiency groups and task modalities?
2. To what extent does the type of modality affect EFL learners' ability to interpret conversational implicatures across proficiency groups?
3. Are there any significant differences in EFL learners' comprehension of conversational implicatures across task modalities?

Methodology

Participants

The study sample consisted of 125 female EFL learners majoring in English at Prince Sattam bin Abdulaziz University, a public university in Alkharj province, Saudi Arabia. They were all enrolled in an elective course about pragmatics. Their ages ranged from 21 to 27 years, with a mean of 22.48. The choice of sampling was restricted to female students as the study was conducted on the female campus at the College of Science and Humanities. Participation was

voluntary, as interested students were asked to sign the informed consent forms as per the recruitment procedure, and the researcher provided a detailed description of the purpose of the study. Based on their scores on the Oxford Placement Test (OPT) (Allan, 2006), participants were assigned to two English proficiency groups: advanced users (N = 50) and intermediate users (N = 70). Intermediate and advanced English users were selected to ensure a proper English level allowing participants to participate in the study. Each proficiency group was randomly divided into two experimental modalities: textual and multimodal. All participants were native speakers of Arabic who had studied English in formal classes during their education for at least nine years before joining the four-year English undergraduate program. None of the participants reported studying in an English-speaking country. Five native English speakers were also included as a baseline for interpretation. Table 1 presents a summary of the self-reported demographics of the sample.

Table 1.
Participants' demographic information

The setting of the experiment	Saudi Arabia, Alkharj
Frequency of sessions	Two sessions
Length of the experiment	60 minutes per session
Number of participants	125 EFL students Advanced users (N = 50) Intermediate users (N = 70)
Gender	females
Age range	21-27 years old
The native language of the participants	Arabic

Instrumentation

Three quantitative instruments were used to address the study's questions: the Oxford Placement Test (OPT) and two test modalities of conversational implicature. The OPT is a reliable testing instrument developed in compliance with the Common European Framework of Reference for Languages to measure learners' English language proficiency. The test consisted of listening and grammar sections, each with 100 items. Two test modalities (textual and multimodal) were used to assess participants' ability to interpret conversational implicatures accurately. The test was adopted from Köylü (2018) and was culturally validated by the researcher. The multimodal test is a dynamic computerized audio-visual task comprising 20 segments extracted from the famous television show Friends using Movie Maker Software. The excerpts contain cases of conversational implicatures ranging from four to six sentences and are approximately 20 s long. The intended meaning and interpretation of these implicatures are highly context-dependent. The test is carefully tailored to simulate an authentic exchange with a native English speaker and to avoid the constraints of predetermined multiple-choice tests. For the textual task, a transcription of the multimodal test is provided for participants to write down their interpretations of the conversational implicatures at the end of the dialogue.

'Friends' was selected because its linguistic features resemble those observed in real-life conversations. According to Quaglio (2009), 'Friends' has some core characteristics many registers share in real-life conversations. However, categorizing the types of conversational implicatures when using authentic data was challenging in light of the issues reported in the literature regarding the absence of a clearly defined conventionality scale. Additionally, the difference between the variant groups of conventional and non-conventional implicatures has yet to be clearly defined. Therefore, some scenarios did not fit the earlier classifications of implicatures adopted by previous researchers. Accordingly, all scenarios were viewed as instances of conversational implicatures, whose meanings and interpretations were heavily contextualized.

Procedure

The experiment was conducted in two phases. In the first phase, the Oxford Placement Test (OPT) was distributed online, and participants were assigned to two proficiency groups: intermediate users (n = 70) and advanced users (n = 50). Each proficiency group was randomly divided into two experimental modalities: one group was assigned to the textual test and the other to the multimodal test. Specifically, the intermediate users (n = 70) were randomly assigned to two groups, with each group (n = 35) assigned to one test modality. Similarly, the advanced users (n = 50) were randomly assigned to two groups, with each group (n = 25) assigned to one test modality.

In the textual modality, participants were provided with a basic plot summary of the T.V. show Friends and a brief background description of the cultural context for each conversation. They were instructed to read the scenario carefully and write down the intended meaning of the underlying implicature in the conversation. In the multimodal test, the experimental procedure was the same. However, the instructions were displayed on the screen, and participants were asked to watch the audio-video excerpts of the scenarios while wearing their headphones. The scene during which a speaker produced a conversational implicature was viewed twice to attract learners' attention, followed by a 15-second pause, during which participants were presented with an answer box and asked to write down the appropriate interpretation of the speaker's implicature. All participants were provided with a practice session of three scenarios before the experimental procedure to ensure the comprehension of the criteria. However, these practice scenarios were not included in the experiment. The entire procedure took approximately 60 minutes.

Data analysis

All responses were recorded in an Excel spreadsheet and coded according to the accuracy of their interpretation of conversational implicatures. The responses provided by native speakers served as the baseline. EFL learners whose responses matched those of the native speaker group were awarded 1 point, while those who did not were awarded no points. Descriptive statistics were calculated to compute the mean scores of the proficiency groups. A one-way ANOVA examined the significant differences across the proficiency groups. A post-hoc analysis was also performed to determine which learner groups were significantly different from one another. Next, an independent sample *t*-test was conducted to (1) compare the means of the outcome variable

between the two groups with the same proficiency level and (2) examine whether the type of modality had a significant impact on the accuracy of learners' interpretations of conversational implicatures.

Results

Descriptive statistics were used to investigate the extent to which EFL learners were successful at accurately interpreting conversational implicatures. Table 2 illustrates that the mean scores of proficiency groups across test modalities indicate that accurate interpretations of conversational implicatures have a positive relationship with the degree of L2 proficiency and multimodality. L2 learners with higher levels of English proficiency showed a noticeable accuracy for correct interpretations compared to their intermediate proficiency counterparts in both the textual modality test ($M = 17$ vs. $M = 8$) and the multimodal test ($M = 19$ vs. $M = 12$). Interestingly, the advanced participants performed better on the multimodal task with scores of 19 and 20, representing an almost native-level performance.

Intermediate learners of English had considerably lower rates of correct responses than advanced users and native speakers. Nevertheless, they demonstrated a substantial advancement in their ability to produce accurate interpretations when the speaker's intended meaning was conveyed more clearly through a multimodal approach ($M = 12.06$) than the textual approach ($M = 8.3$), although their responses lacked grammatical accuracy and syntactic complexity.

Table 2.

Descriptive statistics for accurate interpretations of conversational implicatures

Proficiency groups	Modality	No.	Mean	SD	Median	Mode	Min.	Max.
Intermediate users	Textual	35	8.3	3.41	11	11	3	11
	Multimodal	35	12.06	3.66	11	16	5	16
Advanced users	Textual	25	17.07	1.45	18	18	12	19
	Multimodal	25	19.16	1.13	19	20	16	20
Native speakers	Textual	5	20	0.00	20	20	20	20
	Multimodal	5	20	0.00	20	20	20	20

As shown in Table 3, a one-way ANOVA was utilized due to the normal distribution of the data, as evidenced by the skewness of 0.454 (S.E. = 0.347) and kurtosis of -0.626 (S.E. = 0.662). The one-way ANOVA showed statistically significant among groups in the mean scores for accurately interpreting conversational implicatures in both the textual ($F = 90.537$, $p < .005$) and multimodal tasks ($F = 85.376$, $p < .005$). The differences were due to the L2 proficiency levels and type of modality. To further explore the potential areas of significance among the different groups, Tukey's post hoc test was performed. The results indicated significant differences in performance between intermediate and advanced learners in both modalities, as evidenced by the p-value of .000. Additionally, when the performance of both learner groups was compared to that of the native speaker group, significant differences were found in the textual modality for both

groups. In contrast, no significant variations were detected in the multimodal test between advanced learners and the native speaker baseline ($p = .756$).

Table 3.

ANOVA results of textual and multimodal tasks across proficiency groups

Modality	Source	SS	df	MS	F	Sig.
Textual	Between groups	1409.4356	2	704.7178	97.41856	.00001
	Within groups	448.5029	62	7.2339		
	Total	1857.9385	64			
Multimodal	Between groups	850.3543	2	425.1771	55.00515	.001
	Within groups	479.2457	62	7.7298		
	Total	1329.6	64			

An independent sample t -test was performed to compare the mean scores within each of the two proficiency groups to examine the extent to which the type of modality affected participants' performance. As shown in Table 4, both the intermediate and advanced learner groups exhibited a significant variation in the accuracy of interpreting conversational implicatures due to the modality effect. The performance of participants on the multimodal test was found to be significantly higher than their mean scores on the textual test ($p < .05$). The effect size of the group comparisons was relatively large, with a Cohen's d of 2.6, thereby supporting the implication that multimodality positively affects comprehension of interlanguage pragmatics.

Table 4.

Independent samples t -test for the difference in the mean scores of modality tasks across intermediate and advanced proficiency groups.

Proficiency groups	Modality	No.	Mean	SD	Min.	Max.	t	df	sig
Intermediate users	Textual	35	8.3	3.41	3	11	-4.41	34	.00001
	Multimodal	35	12.06	3.63	5	16			
Advanced users	Textual	25	17.04	1.92	12	19	-6.10	24	.00001
	Multimodal	25	19.16	1.13	16	20			

Discussion

This study investigated the effects of different modalities (textual vs. multimodal) on EFL learners' ability to provide accurate interpretations of conversational implicatures, as well as the role of language proficiency and meaningful interaction in pragmatic development. The significant findings revealed that EFL learners' ability to comprehend conversational implicatures increased with L2 proficiency and multimodality. Advanced learners were more accurate in interpreting implied meanings and providing correct interpretations than intermediate learners, whose

responses often lacked grammatical accuracy and syntactic complexity. These findings align with previous research (Bouton, 1988; 1994a; 1994b; Chun, 2022; Çiftlikli & Demirel, 2022; Sağdıç, 2021; Taguchi et al., 2017; Köylü, 2018), indicating that L2 proficiency provides an advantage in decoding conversational implicatures. Notably, this pattern of results was observed in studies using textual modality, which has been the primary modality examined in interlanguage pragmatics research thus far. Using authentic audio-visual prompts, the findings corroborate Chun's (2022) study, which found that the degree of conventionality and type of speech act did not significantly affect L2 learners' ability to comprehend conversational implicature in requests and refusals. However, developing strong English language skills is crucial for adequate implicature comprehension.

The findings of this study provide new insights into the importance of multimodal communication, as they reveal that a multimodal approach can significantly enhance EFL learners' ability to decode conversational implicatures regardless of their L2 proficiency level. Specifically, the study provides evidence for the positive effects of multimodality, showing that advanced English users were less accurate in their interpretations of conversational implicatures when presented with textual scenarios than when watching them. Similarly, intermediate-proficiency learners were more likely to accurately recognize and interpret conversational implicatures when exposed to a multimodal approach rather than a textual one. This difference may be attributed to the range of contextual cues, such as facial expressions, gestures, and intonation, which are provided through audio-visual input and can aid in inferring the correct meaning. These cues can be particularly beneficial for EFL learners who struggle to understand conversational implicatures due to a lack of knowledge of the target language culture, limited grammar and vocabulary, and difficulty recognizing pragmatic markers and figurative languages. This finding is consistent with previous studies (Bromberek-Dyzman et al., 2021; Li, Chen, Chen, & Tang, 2022) showing that the combination of visual and auditory cues yielded the most influential interpretation of implicature, particularly in irony, among L2 learners than in the textual condition. This finding confirms Yang et al. (2018) claim that contextual factors influence the degree of implicature derivation. Specifically, the more contextual information available, the easier for interlocutors to convey and interpret implicatures, as reflected in everyday conversations.

The observed advantage of multimodality may have resulted from the salience of communicative audio-visual contexts. Providing dialogic interactions rich in auditory and visual markers efficiently increased the detection of implied meanings, facilitated processing, and prompted implicature interpretation (Yang et al., 2018). Although the audio-visual modality requires tremendous cognitive effort owing to its richness in contextual cues, the accumulation of these cues may have contributed to a highly accurate recognition of communicative intent (Bromberek-Dyzman et al., 2021). However, this result is inconsistent with that of Shively et al. (2008), who found that the implementation of an audio-visual test had no impact on comprehending irony, as variant modalities of assessment (text-based and audio-visual) did not significantly affect the respondents' scores in this research. However, these authors suggested that

the audio-visual context may have been more challenging for learners regardless of proficiency due to working memory and processing restrictions.

The present study had the advantage of utilizing a computer-based dynamic test consisting of 20-item audio-visual dialogues with a written production response. This approach differs from the conventional textual modalities that dominate interlanguage pragmatic research. Although this task required specialized equipment, such as video editing software, on the researcher's part and additional cognitive load for EFL learners, the analysis demonstrated that this task was more effective at stimulating accurate interpretations of conversational implicatures. The participants' correct responses in the textual modality cannot be attributed to chance. However, a more informative analysis could be obtained by comparing the responses of the two modalities. When proficiency groups incorrectly responded to a test item in the textual task and correctly responded to the same item in the multimodal task, their responses indicated that more information was communicated via audio-visual input than was asserted in the textual task, despite the dramatic effect of proficiency. This finding aligns with Malmir & Mazloom's (2021) investigations which indicated that computerized dynamic assessment (CDA) was more successful in enhancing learners' pragmatic competence than dynamic group assessment (GDA), offering a more realistic assessment of their ability to use language in context. CDA provided learners immediate feedback and personalized instruction, whereas GDA relied on peer interaction and discussion.

Pedagogical implications

This study has several implications for future research. Multimodality has been shown to improve communication by providing visual aids to explain complex concepts and audio cues to focus on essential points in a conversation, allowing individuals to process information more quickly and accurately. Multimodal inputs offer several advantages in terms of interpreting conversational implicatures. It provides a more immersive and interactive experience that may assist foreign language learners in understanding the nuances of conversational implicatures more quickly and efficiently than traditional methods.

The study underscores the need to incorporate multimodal strategies in language learning and teaching, especially when EFL learners struggle with limited vocabulary and grammar, which can inhibit their comprehension of the intended meaning. Multimodality may compensate by providing pragmatic markers, such as intonation, stress, and facial expressions, making it easier for learners to understand the implied meanings. Using a multimodal approach can also be beneficial for improving listening and speaking skills, such as pausing for emphasis or vocal inflection to convey meaning. It also helps learners understand nonverbal cues, gestures, attitudes, body language, and figurative language, such as idioms, proverbs, and metaphors.

Furthermore, the findings have implications for language assessment and teaching, highlighting the potential benefits of incorporating computerized dynamic assessment in language classrooms. The study provides instructors with a means to better demonstrate the complexity of the language by showing how different contextual settings and assessment methods can affect utterance meaning and response accuracy while familiarising learners with the social and cultural

norms of the target language culture. It also enhances attention and motivation by providing an engaging and stimulating environment, thereby improving the comprehension and retention of what learners have learned in real-world conversations.

It is recommended that explicit instruction be provided to help EFL learners, such as Saudi learners, develop the capacity to identify conversational implicatures using a multimodal approach. According to Bouton (1994c), explicit instruction is effective at helping L2 learners recognize implicatures, particularly formulaic implicatures such as irony. However, it is essential to note that these studies focused only on learners' accuracy rather than response times. Further research should investigate how instruction aided by multimodal input can affect learners' ability to process implicatures to achieve native-like performance.

This study has several limitations that may provide avenues for future research. Firstly, the categorization of conversational implicatures, as proposed by Bouton (1988, 1994b) or Brown and Levinson (1987), was inadequate and did not entirely fit the test items. Although each test item contained an implicature, it was unclear which type of implicature was being communicated, as some exchanges did not reveal which Gricean maxim was being violated, while others violated multiple maxims simultaneously. These challenging cases hindered the possibility of any categorization, and, as such, all scenarios were viewed as cases of conversational implicatures whose meanings and interpretations were highly context-dependent. Secondly, the study used two measures of proficiency (intermediate and advanced) which may not have fully captured the complexity of L2 proficiency. Thirdly, the study investigated the potential effects of two modalities (audio-visual vs. textual), and future studies could use several types of input, including the aural, to examine their effect on pragmatic competence across different proficiency levels. Fourthly, the limited cultural diversity of the participant pool may limit the generalizability of the study's findings. Future research should include participants from a broader range of linguistic and cultural backgrounds to increase the applicability of the results to learners from diverse cultural backgrounds. Additionally, the small sample size of the native speaker group, which was used as the baseline for comparison with EFL learners, may not be ideal. Future research should aim to include a larger sample size of native English speakers to increase the reliability of the baseline for comparison with EFL learners.

Conclusion

In conclusion, the present study investigated the impact of two modalities (textual and multimodal) on EFL learners' ability to accurately interpret conversational implicatures across proficiency levels. The results showed that multimodal input significantly enhanced EFL learners' comprehension of conversational implicatures, regardless of their language proficiency. EFL learners were more accurate in interpreting conversational implicatures when watching the scenarios than when reading them. The study highlights the importance of contextual cues, such as facial expressions, gestures, and intonation, provided through audio-visual input, which can aid in inferring the intended meanings. Incorporating multimodal strategies in language teaching can give learners more opportunities to encounter and practice understanding conversational

implicatures in authentic contexts, enhancing their pragmatic competence. It would be worth investigating the influence of contextual factors on the derivation of implicatures through the use of spontaneous conversations as a source for teaching conversational implicatures in a second language, such as authentic audio-visual prompts or analyzing corpora of naturally occurring conversations (Caprario et al., 2022) which would reflect real-world conversations that L2 learners are bound to experience.

Disclosure of Conflicting Interests

The author reports that there are no competing interests to declare.

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