Types of Paralinguistic Methods in Modern Information Transmission

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Abstract. *In modern linguistics, paralinguistic means are recognized as an important component of human communication. Paralinguistics is the study of oral speech as a means of supplementing and enriching it with non-verbal, but meaningful means. Volume, intonation, body movements, facial expressions, pauses and other means ensure a wide range of information transmission in communication. Today, the possibilities of identifying, processing and analyzing paralinguistic information are expanding with the help of artificial intelligence, multimodal corpora, video analytics, audience monitoring systems and other technologies.*

This article sheds light on the use of modern methods in working with paralinguistic information, reveals the essence of paralinguistic methods and their types in modern information transmission, and reveals the effectiveness of these methods based on scientific analysis.

Key words: *linguistics, information, paralinguistics, paralinguistic methods, intonation, mimicry, proxemics, gesture, cognitive, corpus.*

Introduction

Communication between people is carried out not only through linguistic units, but also through elements other than language - paralinguistic means. These means include intonation, pause, body movement, facial expressions, emotional tone and other means. Paralinguistic signals play an important role in the effective transmission of information, filling social and psychological connotations [Nurmonov, 87].

In modern linguistics, the possibilities for recording, coding, and analyzing these processes have expanded significantly. Through artificial intelligence, video analytics, acoustic analyzers, and multimodal language corpora, it has become possible not only to observe but also to study paralinguistic information on a scientific basis.

The purpose of this article is to reveal methods for analyzing paralinguistic information based on modern technologies and to demonstrate their importance in linguistics.

Methods

This article is written on the basis of a combination of analytical and empirical methods. As the main research sources, advanced research in the fields of multimodal communication analysis, corpus linguistics, and cognitive communication in modern linguistics was analyzed. The following methodological approaches were taken as a basis:

➢ **Multimodal analysis method**– analysis of paralinguistic signals based on video and audio materials;

- ➢ **Corpus analysis**– creating a list of paralinguistic elements in multimodal corpora;
- ➢ **Discursive analysis**– determine the contextual significance of paralinguistic tools in communication;
- ➢ **Experimental observations**– assessing the speed and accuracy of transmission of paralinguistic information in communication with an audience or interlocutors.

Results

Paralinguistics is a branch of linguistics that studies the transmission of information through additional means of communication (intonation, facial expressions, body movements, pauses, voice timbre, etc.) in addition to language. Paralinguistic means of information transmission reveal the emotional, social, and psychological context of communication.

1. Intonation and timbre (voice properties)

The pitch, strength, timbre and intonation of the voice provide an emotional background in communication. For example, the same word acquires different meanings with different intonations. "Intonation expresses the internal semantic coherence of speech, it shows the emotion or tone of address in the utterance" [Nurmonov, 23].

2. Pause and speech gap

Pauses separate logical and emotional stresses in speech. Intentional silence is a social signal and a means of nonverbal communication. "The location of the pause indicates the speaker's psychological readiness, emotional state, and attitude to the audience" [Aripova, 49].

3. Mimicry (facial expressions)

Facial expressions are used to convey a person's emotional state. Facial expressions often serve as a source of information, either in conjunction with speech or independently [Ekman, & Friesen, 114]. Ekman describes facial expressions as "the most reliable nonverbal means of conveying a universal emotional code."

4. Gestures (hand movements)

Hand and body movements are used to emphasize or reinforce the meaning of a statement. Sometimes they even replace linguistic units. "Gestures appear alongside words and complement the semantic load of communication" [McNeill, 13].

5. Proxemics (interpersonal distance)

The distance between communicators in the speech process is also a means of transmitting information. For example, in a formal conversation, the distance is longer, and in an informal conversation, it is closer [Hall, 209]. Hall identifies "intimate, personal, social, and public" zones between people, proving that each has a communicative function.

6. Kinesthetic signals (microgestures in the body)

These are signals such as palm movements, shoulder shrugs, head nods, and frowns, many of which are performed automatically. "In multimodal communication, every bodily movement has a semantic and pragmatic load, which makes it a part of linguistic analysis" [Kress & van Leeuwen, 24].

7. Emotional reactions (laughter, sigh, tone)

These are silent or short vocal reactions that transmit social signals. Such states as speech assessment, confidence, annoyance, interest, and displeasure are expressed in this way. "Tone, laughter, sighing, etc., as paralinguistic units, provide a spiritual background to speech gestures" [Ulukhov, 87].

8. Paralinguistics associated with linguistic-prosodic elements

In this case, methods such as phonetic intensification, sound elongation, and stress changes are used to identify important information segments in speech. "Linguoprosodic means are of decisive

importance in determining the emotional color and stylistic connotation of information" (Rizayev, 2006, p. 132).

Research studies show that the following modern tools have proven effective in analyzing paralinguistic information:

➢ **Multimodal language corpora**– for example, paralinguistic elements in video and audio recordings are identified using platforms such as ELAN (EUDICO Linguistic Annotator), ANVIL [Wittenburg et al., 33].

➢ **Automatic data analysis tools**– Facial Action Coding System (FACS) algorithms that detect facial expressions allow for the processing of facial expressions in digital format.

➢ **Sound analysis algorithms**– The "Praat" program accurately measures intonation, pauses, and tempo changes [Boersma & Weenink, 67].

➢ **Artificial intelligence-based analysis**– the emotional semantics of intonation tones are determined using neural networks based on questionnaires and audio recordings [Huang et al., 102].

Research shows that with the help of modern technologies, not only is a paralinguistic signal identified, but the semantic, pragmatic, and communicative functions of this signal are also clearly indicated.

Discussion

Modern methods of working with paralinguistic information are proving to be much more effective than traditional approaches. The first approaches in Uzbek linguistics were developed by scientists such as Nurmonov, Ulukov, and Rizayev, and today there is an opportunity to combine them with technological tools.

For example, in the research of Koziyev et al. (2022), linguostatistical and psycholinguistic approaches were used in harmony to analyze the role of paralinguistic means in discourse. This serves to provide a deeper analysis of the socio-communicative functions of paralinguistic information.

The identification of emotional and social signals that arise during communication using modern analysis tools allows this field to be connected with cognitive sciences, psychology, artificial intelligence, and educational technologies.

The analysis of paralinguistic information with modern methods has brought many innovations to linguistics. First, these methods demonstrate that the communication process is much broader than traditional verbal communication. Second, these methods strengthen the integration between linguistics and psychology, neuroscience, and artificial intelligence.

The results also showed that the amount of information transmitted through paralinguistic means often exceeds the amount of lexical information. This is of great importance for pragmatic and semantic approaches. Emotional tones, gestures, and body movements expressed through paralinguistic elements directly create contextual and psychological understandings of speech meaning.

Conclusion

The wealth of methods for working with paralinguistic information in modern linguistics is based on the integration of science and technology. Multimodal analysis, artificial intelligence, and corpus-based research open up great prospects in this area. In the future, these methods can be widely used in areas such as linguistic didactics, translation theory, and language teaching technologies. Analyzing paralinguistic information with modern methods opens up new prospects in linguistics. These elements can be studied using artificial intelligence, acoustic analyzers, multimodal platforms, and statistical models. The foundations of this area exist in Uzbek linguistics, and expanding and deepening it using modern tools is an important scientific direction.

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