

UDC 378.147:811.111

DOI <https://doi.org/10.24919/2308-4863/60-3-35>**Olena PYSARCHYK,***orcid.org/0000-0001-6354-9381**Lecturer at the Department of English for Engineering № 2  
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"  
(Kyiv, Ukraine) eyashchuk@gmail.com***Anna NYPADYMKA,***orcid.org/0000-0003-1894-3456**Lecturer at the Department of English for Engineering № 2  
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"  
(Kyiv, Ukraine) a.nypadymka@gmail.com*

## TECHNIQUES FOR IMPROVING SPEECH INTELLIGIBILITY OF ESP STUDENTS

*The present article highlights the importance of speech intelligibility development and improvement by students of non-linguistic specialities, namely those who learn ESP, and whose majors are physics, mathematics and engineering. Speech intelligibility is one of the most essential success criteria of effective communication in a foreign language and nowadays, it is the subject of extensive study by many academics across a variety of disciplines including linguistics, psychology, psycholinguistics, neurology, and others.*

*The definitions of this speech intelligibility given by several scholars have been provided and analysed. The term "speech intelligibility" indicates using clear articulation and pronunciation in spoken verbal communication, and the ultimate result of its acquisition is attaining the full mutual understanding between the participants of a certain oral conversation. Also, it has been emphasized that students do not necessarily need to get rid of their native accents in order to reach speech intelligibility since clear pronunciation and articulation may be acquired regardless of accent, which is a significant marker of national authentication and identity.*

*The world is becoming more and more globalised, and the need for free and fluent communication in English is growing rapidly. To reach this goal, in learning process ESP learners develop basic linguistic competences, such as reading, writing, listening, speaking and grammar. They learn specific technical terminology, read scientific papers. Developing speech intelligibility is for sure the part of this process, but, unfortunately, when it comes to teaching ESP to the students of non-linguistic specialities, certain challenges may appear, namely lack of time and the large number of students in each group. Moreover, when we deal with online education, there appears one more difficulty – the lack of control and live interaction between students and a teacher.*

*The practical methodological recommendations of the effective speech intelligibility enhancement and implementation activities have been suggested. The integration of those activities into ESP teaching process has been presented.*

**Key words:** *speech intelligibility, ESP, teaching methods, language competence.*

**Олена ПИСАРЧИК,***orcid.org/0000-0001-6354-9381**викладач кафедри англійської мови технічного спрямування № 2  
Національного технічного університету України  
«Київський політехнічний інститут імені Ігоря Сікорського»  
(Київ, Україна) eyashchuk@gmail.com***Анна НИПАДИМКА,***orcid.org/0000-0003-1894-3456**викладач кафедри англійської мови технічного спрямування № 2  
Національного технічного університету України  
«Київський політехнічний інститут імені Ігоря Сікорського»  
(Київ, Україна) a.nypadymka@gmail.com*

## TECHNIQUES FOR IMPROVING SPEECH INTELLIGIBILITY OF ESP STUDENTS

*У даній статті висвітлюється важливість розвитку та вдосконалення розбірливості мовлення студентів нелінгвістичних спеціальностей, а саме тих, хто вивчає англійську мову професійного спрямування та має спеціальність фізика, математика та інженерія. Розбірливість мовлення є одним із найважливіших факторів ефек-*

тивної комунікації іноземною мовою, і сьогодні вона є предметом досліджень багатьох науковців у різних галузях науки, включаючи лінгвістику, психологію, психолінгвістику, неврологію та ін.

Було представлено та досліджено визначення розбірливості мовлення, запропоновані різними вченими. Термін «розбірливість мовлення» вказує на використання чіткої артикуляції та вимови в усній вербальній комунікації, а кінцевим результатом її набуття є досягнення повного взаєморозуміння між учасниками певної усної розмови. Також наголошується на тому, що студентам не обов'язково позбавлятися рідного акценту, щоб досягти розбірливості мовлення, оскільки чітку вимову та артикуляцію можна набутти незалежно від акценту, який є важливим маркером національної ідентичності.

Оскільки світ стає все більш глобалізованим, потреба у вільному спілкуванні англійською стрімко зростає. Щоб досягти цієї мети, у процесі навчання студенти нелінгвістичних спеціальностей розвивають базові лінгвістичні навички, такі як читання, письмо, аудіювання, говоріння та граматику. Студенти вивчають специфічну технічну термінологію та читають наукові праці англійською мовою. Розвиток розбірливості мовлення, безумовно, є частиною навчального процесу, проте у викладанні англійської мови професійного спрямування можуть виникати певні труднощі, а саме брак часу та велика кількість студентів у кожній групі. Крім того, додатковою проблемою видається відсутність контролю та взаємодії наживо між студентами та викладачем під час онлайн навчання.

У статті запропоновано практичні методичні рекомендації та заходи ефективного підвищення розбірливості мовлення, та представлено інтеграцію цих заходів у процес навчання англійської мови професійного спрямування.

**Ключові слова:** розбірливість мовлення, англійська мова професійного спрямування, методи викладання, мовна компетенція.

**Statement of the problem.** One of the main goals of most ESL learners is to acquire linguistic knowledge and develop language skills for efficient communication, to enable students to exchange information and to be understood in a variety of circumstances. However, there are situations when students feel that due to their poor pronunciation no one can understand them, it becomes an obstacle to efficient communication and causes unwillingness to learn and use English. The situation becomes more complicated when it comes to the work with students of non-language specialities, who study English for Specific Purposes (ESP), since it is not their major subject and not much time in the educational programme is devoted to it. In such conditions, the biggest part of the lesson is spent on learning technical vocabulary, scientific literature comprehension and discussion. Speech intelligibility training is often neglected for the sake of having time to conduct the activities mentioned above. Therefore, there is a need to analyse and discuss intelligibility training techniques, which can be integrated and implemented into ESP teaching process.

**Analysis of research and publications.** The intelligibility issue is nowadays discussed by many scholars, some of them make contributions in finding the ways of measuring intelligibility (N. Miller (2013), N. Schiavetti (1992), D.B. Brungart (2001)), some conduct experiments to observe the impact of the environmental conditions, such as noise impact on speech intelligibility (W.H. Sumbly & I. Pollack (1954), J.S. Bradley (1986), B. Hagerman (1982)), others investigate the issue regarding specific phonetic patterns and adjustments (Cooper. A. & Bradlow A. (2018)). In our article, we will focus on the tasks and methods of increasing the level

of speech intelligibility in the classroom while teaching ESP.

**The purpose and the main tasks** of the present research is to emphasise the importance of reaching speech intelligibility by the students of non-linguistic specialities, to analyse the existing techniques, and provide examples of successful integration of some of them. The tasks of the work included: 1) to analyse of the existing speech intelligibility improvement techniques; 2) to choose such techniques which could potentially be integrated in ESP learning process; 3) to demonstrate the examples of tasks, which were probated on the lessons with the students who study engineering, physics and mathematics.

**Presentation of the main research material.** In a language classroom, most learners strive towards the goal of eliminating their non-native accent, when what is more important is to achieve intelligibility as a part of fluency. Students are taught pronunciation to help them accept their unique accents and learn how to speak with a typical native accent. The accent is something we should value and not be ashamed of because it reveals our origins, upbringing, and life experiences. It used to be thought that students should learn to pronounce words like native speakers, hence teaching and drilling pronunciation was a prerequisite in the classes. Today, teachers tend to focus on improving speech intelligibility and comprehension for effective communication, rather than rehearsing and perfecting native-like pronunciation.

Kazuya Saito and Kim van Poeteren agree that instead of eliminating all standard speech deviations, priority should be given to language errors that are most likely to impede successful communication (Saito et al., 2012: 369). Word emphasis, rhythm, intonation, grammar, and lexis are among the key

language errors that obstruct effective communication. Intelligibility is not a new term for language teachers, as we deal with it frequently in our lessons. According to Page Wheeler and Kazuya Saito intelligibility is the degree to which a speaker is understood, it also refers to listeners' ability to decode individual phonemes or words and their ability to comprehend discourse, concluding that there is strong evidence that visual information, including gestures, visual speech, and other nonverbal behaviour facilitates comprehension for non-native listeners (Wheeler, Saito 2022: 429).

Speech intelligibility, or the art of being understood by others, is the clarity of speech and clear articulation. It's a common misconception among language learners that they must speak fluently and with a natural accent to be understood. Even students with lower overall fluency can express themselves in a way the listener can understand if they are helped by good fluency practices. Speech comprehension is crucial in the working environment, especially since most employers want to hire people who can speak English. Although intelligibility is an essential component of communication, it is not quite a skill, it is rather a combination of pronunciation, fluency, and language clarity for native speakers.

How is speech intelligibility related to pronunciation? Pronunciation is significant for both listening and speaking because it determines how people recognize speech. Since speaking and listening are interconnected in the context of language acquisition and cannot be distinguished from one another, it can be assumed that effective communication depends on proper pronunciation.

The most common strategies for teaching pronunciation suggested by Hsueh Chu Chen are choral repetition, minimal pair drills, pronunciation-focused recast, back-chaining, front-chaining, chanting, reading aloud, tongue twisters, English drama, language laboratory, imitation of native English, modelling the correct pronunciation, breaking words into syllables, using hands, face, and real objects to teach segmental sounds, stress, and rhythm (Chen, 2016: 30).

As one of the methods for increasing mutual understanding, Chen, mentions pronunciation-specific adjustment, used by teachers in ESL classes to make communication clearer, i.e., teachers intentionally use basic vocabulary, speak more slowly, and repeat themselves (Chen, 2016: 30). According to Chen, teachers as listeners have used their adjustment strategies to accommodate the accented speech, rather than removing students' foreign accents (Chen, 2016: 30).

These results will support and raise learners' knowledge of the crucial relevance of learning L2

pronunciation accuracy, in addition to assisting and educating teachers on scaffolding and ways to enhance mutual understanding in L2 classes.

To find new approaches to improving speech intelligibility, we will examine pronunciation and challenges for teachers, the key components of how to improve students' pronunciation and how to boost our students' confidence and assist them in developing or discovering their voices. J. Scrivener writes that it's important to note that the students are working on fluent speaking while under some pressure, as they don't have much time to prepare what they're going to say, so they can't bother about using perfect grammar (Scrivener, 2011). Students will become more focused on the message they want to convey and how to do it effectively. This shifts values from 'getting the grammar right' to 'achieving successful communication' is an important one for many students to come to terms with. While a fair degree of good grammar is necessary to succeed in the task, successful communication is a more important real-world goal than simply being perfect.

Listening is the main factor in understanding. After all, before they can speak a word, students must be able to hear it. Sometimes it can be problematic because native English speakers blend words together, not pronouncing every single word. Students can practice *shadowing* (Lagos, 2018), which is a helpful listening and repetition activity. This method was applied on the ESP lessons within the groups of students of Igor Sikorsky Kyiv Polytechnic Institute, whose major are engineering, physics, and mathematics. The students were offered to listen to the short audio on the topic related to their speciality, with a speech of a native English speaker. Also, the students were offered to choose the audio for the lesson themselves. This gave us the possibility to learn about their preferences and analyse them. Moreover, while choosing appropriate audio files, they had to listen to numerous files, which was beneficial for boosting their listening skills. The next step was brief listening to the audio on the lesson, so they can get used to the speaker's voice, paying attention to the speaker's tempo, intonation, rhythm, and accent. The goal of shadowing is to pronounce the same words as the speaker roughly at the same time. Students can take breaks, try again, and even record and hear their own repetition. The ability to focus on the way a speaker modulates speed, intonation, and blends words will benefit the learners. Students will start to develop their own intonation, clear speaking, and overall fluency by practising shadowing. So, shadowing consists of a few steps: finding a brief audio, listening, and getting accustomed to the speech, practise shadowing, recording yourself,

listening back and comparing the recording with the original. After practising this technique, we received positive feedback from the students. They stated that this was funny, because they were feeling as if they were some actors performing a play, motivating and useful. While issues with individual sounds can occasionally impede comprehension, the other aspects of pronunciation, such as word stress, sentence stress, and intonation should also be taken into account, and shadowing activity is the great option, serving this purpose.

As we indicated previously, teaching ESP involves dealing with technical vocabulary. Transcribing and optimizing new vocabulary, revising it with the students during the lesson, will help the students practice and master it. It is extremely necessary to provide the learners with the proper pronunciation when introducing the new vocabulary to them, as practice has shown that when people encounter a word for the first time and pronounce it incorrectly, there is a significant likelihood that they will continue doing that. Thus, we recommend all of our students to check a pronunciation in a dictionary before using a new word. Many dictionaries, such as Google Translate, offer the option to hear the word pronounced by clicking the “speaker” button. To improve students’ intelligibility over time, and provide plenty of pronunciation practice, as well as boosting confidence to speak without fear of making a mistake, we suggest using the drilling method, which involves multiple repetition of a certain word. Students with non-linguistic specialities, as we have already stated, have a limited amount of time to learn languages. For instance, at our university they have only one ESP lesson per week (2 academic hours). For this reason, we encourage our students to work on drilling at home by providing them with sets of vocabulary items, which we create using Quizzlet platform (<https://quizlet.com>).

One of the most popular and easy-to-implement ways of enhancing articulation and speech intelligibility is using tongue-twisters. In order to

integrate them into our ESP lessons, we suggested our students to participate in creative competition. Students were given the opportunity to create their own tongue twisters using the technical terms they had learnt during one semester. After the competition, we received positive feedback from our students, who said they were excited to test their creativity and share their results. All the tongue-twisters were afterwards practised in the classroom.

Another method which was adopted in the classroom is English drama, that is performing a play. According to Kao and O’Neill drama techniques are group oriented activities, that are used in order to activate negotiation of meaning in a more natural and unpremeditated speech (Kao, O’Neill, 1998: 6). They also state that this method motivates learners to communicate naturally and fluently. In our ESP lessons, as a regular practice, we use role-play activities. This helps students to practice daily conversations on specialized topics, involving technical terminology. To improve students’ speech intelligibility, we assigned two students to practice dialogue, performing certain roles, while the rest of the group were supposed to create additional noise, which was reached by only unmuting their microphones. We assume that this method is effective, since it helps to create natural environment atmosphere, activates students’ listening skills and motivates to pronounce words as clearly as possible.

**Conclusions.** There is no doubt it is critically important to help students to enhance their intelligibility and raise teachers’ awareness on the role and the relevance of pronunciation accuracy in achieving it. Constant practice, speaking only in English, going to speaking clubs, and taking part in foreign exchange programs are some strategies for improving intelligibility. Although some methods were already applied, the outcomes and outputs were outlined and discussed with the students of non-linguistic specialities, yet there is still need to test and implement the other methods which could successfully be integrated into ESP learning process.

#### BIBLIOGRAPHY

1. Bradley J. S. Speech intelligibility studies in classrooms: The Journal of the Acoustical Society of America, 1986. Vol. 80, No 3. P. 846–854.
2. Brungart D. S. Evaluation of speech intelligibility with the coordinate response measure: The Journal of the Acoustical Society of America. 2001. Vol. 109, No 5. P. 2276–2279.
3. Chen Hsueh Chu. In-service Teachers’ Intelligibility and Pronunciation Adjustment Strategies in English Language Classrooms: English Language Teaching. Canadian Center of Science and Education. *Crossref*. Feb, 2016. Vol. 9, no. 4. P. 30. URL: <https://doi.org/10.5539/elt.v9n4p30>
4. Cooper A., Bradlow A. Training-induced Pattern-specific Phonetic Adjustments by First and Second Language Listeners: PubMed Central (PMC), 21 Apr. 2018.
5. Hagerman B. Sentences for testing speech intelligibility in noise: Scandinavian audiology. 1982. Vol. 11, No. 2. P. 79–87.
6. Kao, S., O’Neill, C. Learning a second language through process drama. 1998.

7. Lagos B. Shadowing: A New Way to Improve Fluency at C2 Level | Oxford House Barcelona. Oxford House, 9 May 2018, URL: [oxfordhousebcn.com/en/shadowing-improve-fluency-at-c2-level](https://oxfordhousebcn.com/en/shadowing-improve-fluency-at-c2-level)
8. Miller N. Measuring up to speech intelligibility: *International Journal of Language & Communication Disorders*. 2013. Vol. 48, No. 6. P. 601–612.
9. Saito K., Kim van Poeteren. Pronunciation-specific Adjustment Strategies for Intelligibility in L2 Teacher Talk: Results and Implications of a Questionnaire Study: *Language Awareness*, Vol. 21, No. 4, Informa UK Limited, Nov. 2012, P. 369–85. *Crossref*, URL: <https://doi.org/10.1080/09658416.2011.643891>
10. Schiavetti N. et al. Scaling procedures for the measurement of speech intelligibility: *Intelligibility in speech disorders*. 1992. P. 11–34.
11. Scrivener J. *Learning Teaching: The Essential Guide to English Language Teaching*: Macmillan education. 2011. P. 416.
12. Sumbly W. H., Pollack I. Visual contribution to speech intelligibility in noise: *The journal of the acoustical society of America*. 1954. Vol. 26, No 2. P. 212–215.
13. Wheeler, P., Saito K. Second Language Speech Intelligibility Revisited: Differential Roles of Phonological Accuracy, Visual Speech, and Iconic Gesture. *The Modern Language Journal*, Vol. 106, No. 2, Wiley, June 2022. P. 429–48. *Crossref*, URL: <https://doi.org/10.1111/modl.12779>

#### REFERENCES

1. Bradley J. S. Speech intelligibility studies in classrooms: *The Journal of the Acoustical Society of America*, 1986. Vol. 80, No 3. P. 846–854.
2. Brungart D. S. Evaluation of speech intelligibility with the coordinate response measure: *The Journal of the Acoustical Society of America*. 2001. Vol. 109, No 5. P. 2276–2279.
3. Chen Hsueh Chu. In-service Teachers' Intelligibility and Pronunciation Adjustment Strategies in English Language Classrooms: *English Language Teaching*. Canadian Center of Science and Education. *Crossref*. Feb, 2016. Vol. 9, no. 4. P. 30. URL: <https://doi.org/10.5539/elt.v9n4p30>
4. Cooper A., Bradlow A. Training-induced Pattern-specific Phonetic Adjustments by First and Second Language Listeners: *PubMed Central (PMC)*, 21 Apr. 2018.
5. Hagerman B. Sentences for testing speech intelligibility in noise: *Scandinavian audiology*. 1982. Vol. 11, No. 2. P. 79–87.
6. Kao, S., O'Neill, C. Learning a second language through process drama. 1998.
7. Lagos B. Shadowing: A New Way to Improve Fluency at C2 Level | Oxford House Barcelona. Oxford House, 9 May 2018, URL: [oxfordhousebcn.com/en/shadowing-improve-fluency-at-c2-level](https://oxfordhousebcn.com/en/shadowing-improve-fluency-at-c2-level)
8. Miller N. Measuring up to speech intelligibility: *International Journal of Language & Communication Disorders*. 2013. Vol. 48, No. 6. P. 601–612.
9. Saito K., Kim van Poeteren. Pronunciation-specific Adjustment Strategies for Intelligibility in L2 Teacher Talk: Results and Implications of a Questionnaire Study: *Language Awareness*, Vol. 21, No. 4, Informa UK Limited, Nov. 2012, P. 369–85. *Crossref*. URL: <https://doi.org/10.1080/09658416.2011.643891>
10. Schiavetti N. et al. Scaling procedures for the measurement of speech intelligibility: *Intelligibility in speech disorders*. 1992. P. 11–34.
11. Scrivener J. *Learning Teaching: The Essential Guide to English Language Teaching*: Macmillan education. 2011. P. 416.
12. Sumbly W. H., Pollack I. Visual contribution to speech intelligibility in noise: *The journal of the acoustical society of America*. 1954. Vol. 26, No 2. P. 212–215.
13. Wheeler, P., Saito K. Second Language Speech Intelligibility Revisited: Differential Roles of Phonological Accuracy, Visual Speech, and Iconic Gesture. *The Modern Language Journal*, Vol. 106, No. 2, Wiley, June 2022. P. 429–48. *Crossref*, URL: <https://doi.org/10.1111/modl.12779>